

AD-A083 909

GENERAL ACCOUNTING OFFICE WASHINGTON DC COMMUNITY AN--ETC F/8 6/8
WHAT FOODS SHOULD AMERICANS EAT? BETTER INFORMATION NEEDED ON N--ETC(U)

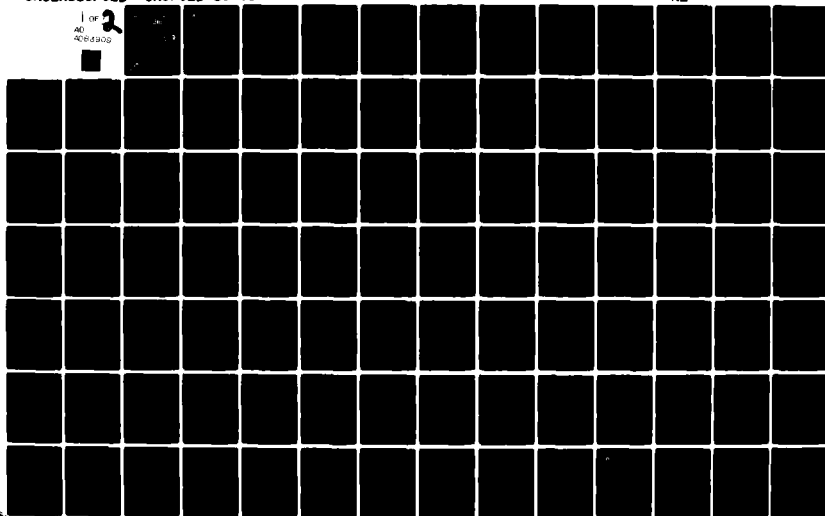
APR 80

UNCLASSIFIED

GAO/CED-80-68

NL

1 of 2
AD-A083 909



BY THE COMPTROLLER GENERAL

Report To The Congress.

OF THE UNITED STATES

ADA 083909

LEVEL

6 What Foods Should Americans Eat? Better Information Needed On Nutritional Quality Of Foods.

Consumers, Government, industry, and others need better information on the nutritional value of foods. Presently there are no generally accepted nutrition principles and no authoritative guidance on what amounts are too much or too little of such controversial food substances as fat, cholesterol, salt, sugar, fiber, and alcohol, which have been linked to major diseases and disorders.

This report makes recommendations to the Secretaries of the Departments of Agriculture and Health, Education, and Welfare to provide such information to assist Americans in making decisions about nutrition and help reduce consumer confusion.

Food decisions are becoming increasingly difficult for consumers and Government to make due to the many thousands of food items to choose from, a changing lifestyle that generally requires consuming fewer calories, and a growing desire to select foods that promote good health.

DTIC
ELECTE
MAY 8 1980
S D C

This document has been approved
for public release and sale; its
distribution is unlimited.

DDC FILE COPY



80 5 2 0 17

11 31 Apr 80

14 GAO/CED-80-68
APRIL 30, 1980

411 477

12 101



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-198160

To the President of the Senate and the
Speaker of the House of Representatives

This report discusses the need for developing generally accepted nutrition principles, authoritative guidance on controversial dietary substances, and current and complete data on nutrient composition of foods.

We are sending copies of this report to the Director, Office of Management and Budget; the Director, Office of Science and Technology Policy; the Secretaries of Agriculture and Health, Education, and Welfare; and the Chairman, Federal Trade Commission.

Comptroller General
of the United States

Accession For	
NRC G-10&I	
DPO TAB	
Announced	
Justification <i>for</i>	
By <i>[signature]</i>	
Distribution/	
Availability Codes	
Dist	Avail and/or special
<i>A</i>	

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

WHAT FOODS SHOULD AMERICANS EAT?
BETTER INFORMATION NEEDED ON
NUTRITIONAL QUALITY OF FOODS

D I G E S T

Americans have a growing desire to select foods that promote good health. With thousands of food products to choose from, food decisions are becoming more difficult for consumers and the Government.

The Government needs to adopt a set of nutrition principles and provide authoritative guidance on safe levels of intake for controversial dietary substances that have been associated with certain diseases. Changes in lifestyles, which make calorie consumption a concern, and changes in the food supply intensify the need for up-to-date and complete data on foods' nutrient composition.

Attempts have been made to classify foods as "nutritious," "low nutritious," or "junk" foods. However, no food in isolation from a total diet should be characterized as good or bad. It is the combination of foods which complement each other that forms the basis for a nutritious diet. A greater Federal effort is needed to help consumers determine what foods and diet are best for their health, and to help Government carry out its food programs consistently and effectively. (See pp. 1 to 6.)

NEED FOR EXPLICIT AND GENERALLY
ACCEPTED NUTRITION PRINCIPLES

A set of comprehensive nutrition principles could provide Government a more consistent basis for nutrition decisionmaking and reduce consumer confusion. Although some general nutrition principles have been formulated in the past for education planning (such as the principle of a balanced diet or a variety of foods) no formal or generally accepted set of principles exists. Past principles were not widely available and lacked recognition and general acceptance. (See pp. 4 to 8.)

CED-80-68

Accepted principles also could provide guidance for regulatory action. For example, such principles could help the Department of Agriculture (USDA) in its efforts to restrict the sale of low-nutritious foods in schools. (See pp. 8 to 10.)

GAO recommends that the Secretaries of Agriculture and Health, Education, and Welfare (HEW) jointly develop, with the aid of other agencies, the food industry, and nutrition organizations, a set of explicit nutrition principles. Such principles will enable Federal agencies to carry out their food programs and nutrition education responsibilities more effectively and provide consumers with a better basis for making nutrition decisions.

HEW, the Department of Agriculture, and the Federal Trade Commission agreed with this recommendation and said that the establishment of nutrition principles would be timely and beneficial. ^{1/} (See p. 13.)

AUTHORITATIVE GUIDANCE NEEDED ON CONTROVERSIAL DIETARY SUBSTANCES

Recommended ranges, allowances, or other standards should be established on what is too much or too little intake for controversial food components--fat, cholesterol, sugar, salt, alcohol, and fiber.

The lack of such authoritative guidance creates a dilemma for consumers concerned about diet and health. For example, nutrition literature may recommend the consumption of liver, milk, and eggs as good sources of protein, vitamins A and B, and iron. Other literature may recommend avoiding these same foods to prevent atherosclerosis because of their fat and cholesterol content. (See pp. 15 to 19.)

The Secretaries of both Departments should convene a panel of experts from in and out of Government,

^{1/}On February 4, 1980, Agriculture and HEW issued dietary guidelines for Americans, which GAO believes is a major step in the right direction. (See pp. 14 and 21.)

or request that a group be established by an organization such as the Food and Nutrition Board of the National Academy of Sciences to develop specific or ranges of intake levels of controversial dietary substances associated with public health concerns. (See p. 20.)

HEW and the Federal Trade Commission agreed with the need for an external review of the guidelines being developed. However, Agriculture disagreed and said it sees little need for such a review by others because the guidelines will only summarize scientific consensus. (See p. 20.)

GAO agrees that when guidelines represent a summary of scientific consensus, an external review is unnecessary. However, GAO believes, and HEW agrees, that an external review is in order when updating or revising guidelines, especially those not based on scientific consensus, to ensure that they coincide with current research findings. An external review would also be necessary when the Departments develop specific levels or ranges of intake of controversial dietary substances. (See p. 21.)

MORE CURRENT AND COMPREHENSIVE DATA IS
NEEDED ON THE NUTRIENT CONTENT OF FOOD

The lack of data on the nutrient content of food limits the decisions that government and others can make with respect to nutrition research, education, surveillance, labeling, advertising, and food delivery programs. The relatively small effort by the Department of Agriculture and others to increase the output of composition data is attributable to the low priority for performing nutrient analyses of food and the lack of adequate methods for analyzing the nutritional content of foods.

In recent decades, the American food supply has changed so that more than half of our diet now consists of processed foods rather than fresh produce. Because of these changes and in view of the increasing need for more current and comprehensive food composition data, GAO recommends that the Secretary of Agriculture examine the alternatives needed to improve food compo-

sition methodology, research, data assembly, analysis, and dissemination and evaluate the Department's priorities with the objective of placing greater emphasis on obtaining timely output of more complete and needed food composition data. (See pp. 23 to 32.)

Federal Trade Commission officials support GAO's recommendation regarding the need for more current and comprehensive data on the nutrient content of food. USDA disagrees with the conclusion that there is a lack of priority and concern by the Department with food composition data and analysis.

GAO recognizes that USDA has had budget and personnel constraints and has made some efforts in recent years to expedite the badly needed updating of food composition data. However, GAO believes USDA needs to re-evaluate its priorities regarding food composition data and place a greater emphasis on obtaining more timely output of more complete and needed food composition data. USDA, HEW, and most of the experts GAO contacted agreed that good food composition data is important and needed because it is a basis for nutrition research, surveillance, education, information, food delivery programs, and food labeling and advertising regulations. (See p. 33.)

C o n t e n t s

		<u>Page</u>
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	Basic considerations important to making nutrition decisions	1
2	NEED FOR EXPLICIT AND GENERALLY ACCEPTED NUTRITION PRINCIPLES FOR DECISIONMAKING	4
	Past Federal efforts to develop concepts for planning nutrition education programs	6
	Generally accepted nutrition principles could aid the Federal Government in making controversial nutrition decisions	7
	Conclusions	12
	Recommendation	13
	Agency comments	13
3	NEED FOR AUTHORITATIVE GUIDANCE ON CONTROVERSIAL DIETARY SUBSTANCES	15
	Guidelines on controversial dietary substances could encourage the food industry to respond to consumer and health concerns	17
	USDA/HEW efforts to develop nutrition/diet guidelines	19
	Conclusions	19
	Recommendation	20
	Agency comments	20
4	NEED FOR MORE CURRENT AND COMPLETE FOOD COMPOSITION DATA	23
	Lack of data limits nutrition decisions	24
	Gaps in food composition knowledge	28
	Major causes for gaps in food composition data	30
	Conclusions	33
	Recommendation	33
	Agency comments	33

CHAPTER		<u>Page</u>
5	SCOPE OF REVIEW	35
APPENDIX		
I	Basic nutrition concepts developed by the Interagency Committee on Nutrition Education	36
II	Nutrition education concepts developed by the 1969 White House Conference on Food, Nutrition, and Health	37
III	The Pennsylvania State University nutrition concepts	39
IV	Examples of efforts to define the nutritional quality of food	42
V	GAO letter dated October 5, 1979, to USDA regarding the sale of foods in competition with the school lunch and breakfast programs	46
VI	Nutrients considered for food labeling, advertising, and legislative purposes	53
VII	State of knowledge of nutrient composition	54
VIII	USDA assessment of nutrients contributing to U.S. health problems from an inadequate or excessive intake of the nutrient	56
IX	USDA's assessment of methods developed for analyzing nutrients in foods	57
X	USDA projected nutrient analyses for 1979-84 based on current and increased funding levels	58
XI	Participants in GAO workshop, "Junk Food-Nutritious Foods" - Can They Be Defined?"	60
XII	Letter dated February 1, 1980, from Assistant Secretary, USDA and Director, Science and Education	61
XIII	Letter dated December 5, 1979, from Acting Inspector General, HEW	84

APPENDIX**Page**

XIV	Letter dated November 26, 1979, from Director, Bureau of Consumer Protection, FTC	89
XV	USDA and HEW dietary guidelines	92

ABBREVIATIONS

FDA	Food and Drug Administration
FTC	Federal Trade Commission
HEW	Department of Health, Education, and Welfare
ICNE	Interagency Committee on Nutrition Education
NSMS	Nutritional Status Monitoring System
RDA	recommended dietary allowances
USDA	Department of Agriculture
U.S. RDA	United States recommended daily allowances

CHAPTER 1

INTRODUCTION

Proper decisions for achieving an adequate diet are becoming increasingly difficult for many consumers. Some of these difficulties can be attributed to (1) the many thousand food items to choose from and (2) a growing desire to select foods that promote optimum health.

Nutrition surveys indicate that consumers want more and better nutrition information. Consumers are concerned about weight control and the statistical association between several major diseases and diet and other lifestyle factors. Even though consumers may be concerned, surveys indicate that many Americans are confused and lack information on how to select a diet that provides essential nutrients within their calorie limits.

Americans are less active today than their counterparts in previous generations and therefore should consume fewer calories and/or be more physically active to maintain an ideal weight. As a result, Americans need to choose from foods relatively high in nutrients but low in calories. When excess calories cannot be expended through physical activity it can result in obesity.

Obesity is defined as 20 percent or more above desirable body weight based on body height and build. An estimated 20 percent of all adults are overweight to a degree that it may interfere with optimal health and longevity; after age 40 the figure jumps to 35 percent. An estimated 10 to 40 percent of school children are overweight (those whose weight is 10 percent above the desirable body weight). In perhaps 5 percent of the total cases, obesity results from hormonal imbalance, brain damage, certain drug treatments, or other relatively rare circumstances. For the great majority of cases, however, current scientific opinions hold that obesity is hereditary or arises from certain kinds of lifestyle, eating behavior, or reduced physical activity.

BASIC CONSIDERATIONS IMPORTANT TO MAKING NUTRITION DECISIONS

Proper nutrition judgments should first be based upon an individual's energy and nutrient needs, followed by one's cultural attitudes, habits, likes and dislikes, and other socio-cultural and economic factors. Selecting foods for a diet that will provide the essential balance of nutrients and energy

raises several consumer concerns. One is the amount of energy (calorie) value the diet offers and how it will affect a person's weight. The caloric value of a food depends on the amount of fat, carbohydrates, protein, and/or alcohol present. Another concern is a food's nutrient content for maintaining bodily functions. Because the body is unable to manufacture a variety of needed nutrients, it is dependent on the food supply for at least 45 to 50 nutrients, including protein and its amino acids (the building blocks of body protein), vitamins, minerals, fatty acids, and water.

While individuals are attempting to satisfy their energy and nutrient needs, they are faced with a major health concern over the intake of too much fat, cholesterol, sugar, salt, and alcohol, and too little fiber. These dietary substances are statistically associated with a number of major diseases and disabilities. Unlike the classical nutritional deficiency diseases, such as an iodine deficiency causing goiter, a vitamin D deficiency causing rickets, or a vitamin C deficiency causing scurvy, the direct cause and effect relationship between food and health for most widespread diseases and disabilities has not been well established, except for a link between dental cavities and sugar and liver disease and alcohol.

Achieving an adequate diet and satisfying current nutrition concerns therefore requires information on human needs for energy and nutrients while controlling the amount of controversial dietary substances, and information on foods ability to satisfy human needs.

Many other factors, however, influence Americans' food purchasing decisions, including cost, taste, socio-economic status, culture, ethnicity, family, peer, school, advertising, physician, and Government. Increased urbanization and changing lifestyles also contribute to the kinds of food eaten. Changing lifestyles are reflected in (1) a more sedentary life requiring less total energy, (2) half of the women working outside the home, which results in less time spent preparing and planning meals, and (3) more food eaten away from home, in restaurants, fast food places, and school and office cafeterias.

The Federal Government must also cope with the many considerations that affect food and nutrition decisions. Each year the Federal Government spends billions of dollars to provide food or food-related assistance. Other Federal nutrition efforts include (1) regulating food processing, advertising, and labeling, (2) conducting nutrition research, (3) disseminating nutrition information and sponsoring nutrition education programs, and (4) conducting nutrition health surveillance

surveys of the American people. Many of these efforts have been addressed in some of our previous reports. 1/

This report discusses the need for improvement in three basic factors important to making better nutrition decisions. They are

- development and dissemination of explicit and generally accepted nutrition principles to guide consumers, Government, and industry in their food and nutrition decisions;
- adequate data on human needs, including the dietary substances statistically associated with major diseases; and
- adequate data on foods ability to satisfy human needs.

The inadequacies of these factors have contributed to consumer confusion on foods to select for an adequate diet and to Government ineffectiveness in administering its nutrition-related activities.

1/"Evaluation of Efforts to Determine Nutritional Health of the U.S. Population," B-164031(3), Nov. 20, 1973; "National Nutrition Issues," CED-78-7, Dec. 8, 1977; "Informing the Public About Nutrition: Federal Agencies Should Do Better," CED-78-75, March 22, 1976; "How Good Are School Lunches," CED-78-22, Feb. 3, 1978; "Federal Human Nutrition Research Needs a Coordinated Approach to Advance Nutrition Knowledge," PSAD-77-156 and PSAD-77-156A, March 28, 1978; "Recommended Dietary Allowances: More Research and Better Food Guides Needed," CED-78-169, Nov. 30, 1978; "Future of the National Nutrition Intelligence System," CED-79-5, Nov. 7, 1978; "Formulated Grain-Fruit Products: Proposed Restrictions On Use In School Breakfast Program Should Be Reevaluated," CED-79-12, Dec. 26, 1978.

CHAPTER 2

NEED FOR EXPLICIT AND GENERALLY ACCEPTED

NUTRITION PRINCIPLES FOR DECISIONMAKING

Presently, there is no recognized set of nutrition principles available to aid consumers and Government agencies in their nutrition decisionmaking. ^{1/} Although some basic nutrition principles have been formulated by various groups, no formal or generally accepted set of principles exists. Although some nutrition principles may be present in nutrition literature and may be used in administering some Government programs, they lack visibility, recognition, and general acceptance.

The development and dissemination of explicit and generally accepted nutrition principles could serve as a foundation for all to follow. Such principles could also serve to clarify issues and provide a basis for selecting one alternative among many.

Below are four examples of general principles found in a review of various nutrition documents.

- Nutrition requirements. Nutrient and energy needs vary from individual to individual and are based on such factors as body size, sex, age, physical activity, and health status. The genetic makeup of the individual plays a large role in determining nutrient needs and in the body's ability to adapt to dietary change.
- Variety of foods. A diet of a variety of foods provides greater assurance of getting adequate amounts of the 45 to 50 known essential nutrients and the unknown and undiscovered nutrients required by the body.
- Average diet of a few days. One must approach food consumption as an average to be reached over a period of a few days and therefore not be expected to consume

^{1/}We define "nutrition principle" as a basic, fundamental truth or widely accepted nutrition concept upon which nutrition-related decisions can be partially based.

each day the exact recommended proportion of nutrients and calories.

- Factors of appropriate foods. The appropriateness of a food for any one person depends on many factors including nutritional requirements, health, life-style, nutrient composition of other foods in the diet, taste preference, cost, family traditions, religious requirements, and other personal values.

Some of the above principles can be further expanded and be more explicit. For example under nutrient requirements, a subprinciple could include:

- Nutrient intake exceeding levels needed for immediate use and limited reserve are of no value, and in some cases may be harmful to health.
- The body's physiological needs differ during periods of growth and development, pregnancy, lactation, or recovery from illness and trauma.

Possible subprinciples under the basic principle for a variety of foods could be:

- No one food contains nutrients in the appropriate amount and combinations to meet total nutritional needs.
- Foods are not in themselves "good" or "bad" nutritionally. Their nutritional value should be viewed in the context of the contribution it makes toward the diet.

In some cases the establishment of more explicit subprinciples could lead to the need for specific criteria to protect the health of Americans. For example, the above subprinciple for nutrient requirements indicates a potential harmful health effect could result from the excessive intake of certain nutrients. This could be caused by excessive fortification--the adding of nutrients to foods. Consequently, the general acceptance of this as a principle, could lead to standards as to the conditions for and amounts of fortification of food.

The benefits of fortification as a nutritional supplement have been well established in controlling such diseases as rickets, pellagra, and goiter. Some of the nutrients, however, that have been identified as essential for human health and development are also known to be toxic at appreciable levels above recognized requirements. The levels at which acute toxicity occurs have not been determined for most essential vitamins and minerals. For those where data

are available the margin of safety is sometimes small. For example, five times the recommended daily intake of vitamin D over a period of time is toxic in some individuals.

PAST FEDERAL EFFORTS TO DEVELOP CONCEPTS FOR PLANNING NUTRITION EDUCATION PROGRAMS

Four "Basic Concepts of Nutrition for Nutrition Education" were developed in 1964 by a subcommittee of the former Interagency Committee on Nutrition Education (ICNE). (See app. I.) Minor revisions to the concepts were made in 1973. The purpose of the concepts was for planning nutrition education programs. ICNE, in which the Department of Agriculture (USDA) was the lead agency, provided a formal mechanism for exchange of information among agencies on nutrition education activities. ICNE was abolished in fiscal year 1974 because Office of Management and Budget and congressional directives restricted the use of funds for interagency activity.

The 1969 White House Conference on Food, Nutrition, and Health used the ICNE concepts as a basis for deriving some of its concepts. The White House Conference panel listed seven concepts that should be used as a conceptual framework for developing new curriculums and evaluating existing curriculums of nutrition education in the schools. (See app. II.) According to the former panel chairman, four of the seven concepts were basically derived from the ICNE recommendations. The former chairman told us he is not aware of any use being made of the panel's seven concepts.

A further expansion of the ICNE concepts and the 1969 White House Conference concepts was made by Pennsylvania State University. It established 20 concepts in the development of education curriculum for school levels kindergarten through 12th grade and adults. (See app. III.) The nutrition concepts developed included two major concepts--one on nutrients and the other on food. Each of the major concepts had 10 subconcepts. These concepts are included here to illustrate some specific examples of nutrition principles that might be useful in establishing generally accepted nutrition principles.

Several nutritionists with whom we discussed the ICNE concepts felt they were too general for decisionmaking purposes and saw a need for expansion and refinement of the concepts. Furthermore, since the concepts were revised over 5 years ago, a review of their currency and completeness appears appropriate.

GENERALLY ACCEPTED NUTRITION PRINCIPLES
COULD AID THE FEDERAL GOVERNMENT IN MAKING
CONTROVERSIAL NUTRITION DECISIONS

A current nutrition problem facing several agencies, nutritionists, and others who could benefit from a better basis for making nutrition decisions concerns ways of defining and presenting the nutritional quality of food. A leading example is the popular attempt of many to categorize certain foods as nutritious foods, low nutritious foods, or junk food. Use of the term "junk food" with respect to a single food, in isolation from a total diet, is erroneous and misleading and should be avoided. Every food has some value, even if it is primarily calories. It is the combination of foods which complement each other that form the basis for a nutritious diet. Appendix IV contains some examples of Government and other attempts to define the nutritional quality of food which either (1) name foods that are considered nutritious or not nutritious, (2) specify a nutrient-to-calorie ratio for the number of nutrients that a food must contain before it could be considered nutritious, or (3) set limits on the amount of sugar, fat, salt, and/or artificial ingredients a food may contain before it could be considered unacceptable.

A major drawback of these definitions is the lack of a consensus on how to individually judge the nutritional quality of the food we consume. There is no general agreement on how much of a nutrient should be present in a food, or how many nutrients a food should contain to be considered a low nutritional value food or a high nutritional value food.

What may be a bad food for one person could be a good food for someone else. For example, a food high in calories and low in nutrients is often considered to be a bad food. This may be true for the obese individual, but the growing athlete may have a need for such foods to satisfy his or her energy needs. Nevertheless, public interest in eating for better health appears to favor the categorization of foods as good or bad.

Federal agencies and the Congress have made several attempts to categorize the nutritional quality of foods. USDA, in its administration of child nutrition programs, has issued regulations restricting the sale of certain foods on school premises. These are foods which the Secretary considers to be competing with the school lunch or breakfast programs.

The Federal Trade Commission (FTC), which is responsible for preventing false and misleading advertising, has

proposed regulations identifying what a food must contain before it can be promoted as nutritious. Recently, FTC officials said they recommended that the Commission drop this part of the proposed regulation.

Congressional attempts to categorize food relate to foods offered in the food stamp program.

USDA attempts to regulate foods
which compete with the school
lunch and breakfast programs

Congressional desires to eliminate low nutritional value foods which compete with federally supported school lunch and breakfast programs have met with resistance from industry. Industry's primary argument is the lack of an acceptable basis for defining such foods. Section 17 of Public Law 95-166, approved November 10, 1977 (91 Stat. 1345), which amended section 10 of the Child Nutrition Act of 1966, authorized the Secretary of Agriculture to regulate the sale of competitive foods in schools participating in programs under the Child Nutrition Act of 1966 and the National School Lunch Act. On April 25, 1978, the Secretary proposed a regulation listing certain foods that should not be sold on school premises until after the last lunch period.

The proposed regulation would prohibit the sale of foods that do not make a positive nutritional contribution to the children's overall diets and dietary habits. The regulation would ban the following food categories: soda water, frozen desserts, candy, and chewing gum. According to USDA officials, verifiable scientific support did not exist to show that these categories were any less nutritious than some foods presently served in the school lunch program.

In developing the proposed regulation, USDA reports that it considered such factors as

- the legislative intent on foods not to be approved;
- the Department's desire to promote school environments which reinforce student nutrition education and help develop sound dietary habits;
- the questionable nutritional characteristics of the food categories proposed to be banned; and
- the ability to successfully implement, monitor, and administer the regulation at the local level.

USDA has since received many complaints from food manufacturers regarding the basis of its identification of

restricted foods. As a result, the proposed rule was withdrawn and a new proposed regulation issued.

On July 5, 1979, USDA proposed a new regulation. The new regulation, effective January 1, 1980, calls for eliminating certain foods with minimal nutritional value. The criterion established would include food that did not contain at least 5 percent of the U.S. recommended daily allowances (U.S. RDA) for one or more of the eight nutrients required for nutrition labeling--protein, vitamin A, vitamin C, niacin, riboflavin, thiamin, calcium, and iron. The new regulation identifies such foods as soda water, water ices, chewing gum, and certain candies as unacceptable foods to be sold in competition with the national school lunch and breakfast programs.

Depending on the quantitative variable used to determine minimal nutritional value, the number and kinds of foods USDA considers acceptable or unacceptable could vary greatly. For example, in the case of an apple or one cup of unsweetened applesauce, a slight change in quantitative variables could affect their acceptability. In both cases only one of the eight nutrients exceed the 5-percent criterion. The high nutrient for an apple is vitamin C, and iron for applesauce, both at 6.7 percent of the U.S. RDA. The apple and applesauce would not, however, be acceptable if the criterion called for 5 percent of the U.S. RDA for at least two or more nutrients.

Overall, the new proposal raises several major concerns which we expressed in a letter to USDA. (See app. V.) One being the ability of food manufacturers to fortify their products to meet the 5-percent criterion. The proposal does not prevent food manufacturers from adding nutrients to their products. Furthermore, no Federal agencies have overall control over regulating or prohibiting food fortification. Although the Food and Drug Administration (FDA) lacks expressed authority to control fortification, it does have some control over food fortification through food standards and special dietary food regulations, regulation of imitation and substitute foods, and authority to prevent false or misleading labeling.

In January 1980 FDA issued a final policy statement on nutrient fortification of food. 1/ The policy lists a series of guidelines which manufacturers are urged to follow if they

1/Federal Register, Vol. 45, No. 18, Jan. 25, 1980, pp. 6314-6324.

elect to add nutrients to a food. The objective of the policy is to ensure a rational addition of nutrients to foods in order to preserve a balance of nutrients in the diet. The policy is not to encourage widespread nutrient fortification of foods but rather to provide a consistent set of guidelines to be followed when foods are nutritionally improved by the addition of vitamins, minerals, or protein. The statement also establishes FDA's policy on labeling claims that may be used to describe specific fortification actions.

FDA recognizes the importance and usefulness of establishing nutrition principles. FDA's policy states

"In the absence of a unifying set of principles or guidelines, random and arbitrary fortification of some foods is likely to occur. This may result in the overfortification of the food supply with some nutrients * * * and the underfortification with others * * * ."

Another concern is categorizing individual foods as acceptable or unacceptable based on the criteria as established. First, the proposed regulation does not prove that eliminating these foods will have any positive effect on the health or eating habits of children. Second, the food being defined as of minimal nutritional value is intended to serve as a criteria for all children. Since many children have varying energy and nutrient needs, what may be of minimal nutritional value for some may not be for others. Finally, the categorization of foods by a major Federal agency may also serve to influence a greater population into classifying foods as good or bad.

The proposed regulation may have been strengthened by accepted nutrition principles that help in making nutritional judgments on individual foods. For example, the principle that the nutritional quality of a food depends, in part, on its relation and contribution to the total diet, would have been useful. Also, a principle on fortification could have provided guidance for determining when a fortified product is acceptable or unacceptable and under what circumstances a product can be fortified and to what extent. Without such guidance, food manufacturers whose products fail to meet the 5-percent criterion can circumvent the criterion through fortification.

FTC's proposed food advertising regulation

On November 7, 1974, FTC proposed a regulation on food advertising that included a nourishment claims section. This section was designed to prevent deceptive or unfair claims by food advertisers. Such claims distort the nutritional properties of the advertised food and exploit the

consumers' understanding of those claims. The proposed rule established uniform standards for the use of the terms nourishing, wholesome, or nutritious in advertising.

The proposed criteria for nourishment claims was based on the nutrient density concept. This concept represented a quantitative approach for judging the nutritional quality of food. Specifically, the FTC-proposed criteria provided that before a food could be advertised as nutritious or wholesome it would have to meet the following standards:

1. Contain at least 10 percent of the U.S. RDA, per 100 calories, for protein, and at least three other nutrients of the 20 considered. (See app. VI.)
2. A serving of the food must provide at least 10 percent of the U.S. RDA for at least one nutrient.

According to an FTC official, the proposed criteria was not satisfactory to food advertisers. Based on an FTC-funded study, the Society for Nutrition Education tested the criteria and found that only 46 of 615 foods tested met the standards. FTC received adverse public comment about the stringent criteria and the exclusion of many traditional foods, such as milk and milk products, fruits, breads, cereals, and meat-type items. FTC also funded a survey to determine consumer perceptions of the terms nourishing and nutritious. ^{1/} After obtaining public comments, test results, and consumer survey results, the FTC staff decided to reduce the criteria requirement.

The revised criteria is expected to permit many more foods to qualify. FTC staff told us the revised criteria were submitted to the Commission for consideration in October 1978. The FTC staff said that in December 1979, it recommended to the Commission that part of the proposed regulation be terminated. As a result, FTC may not consider the standard for foods advertised as "nutritious."

Like USDA, FTC may have benefited from a nutrition principle concerning the nutritional quality of individual foods and fortification.

^{1/} Respondents were asked what they expected a food advertised as being nourishing or nutritious, to contain. Almost two-thirds said vitamins, more than one-quarter said protein, and more than one-quarter said mineral content.

Congressional attempts to
define the nutritional
quality of food

In 1975 and 1977, legislative attempts were made to eliminate low nutritional food from the food stamp program. However, it was difficult to determine which foods should be included or excluded. In addition, the Congress expressed concern that such a restriction of food choice would lead to administrative problems as well as interfere with freedom of choice.

In 1977 amendments attempting to improve food stamp users' level of nutrition were introduced as House bill 7940 to the 95th Congress, First Session. A derivation of the nutrient density concept was used to define which foods would qualify. For a food to be allowable under the food stamp program, it would have to contain a specified level of the U.S. RDAs for two or more selected nutrients. The proposed amendments were defeated because the Congress had difficulties in defining nutritious, foresaw problems in implementation, and did not want to limit food stamp users' freedom of choice.

In 1975 the House Agriculture Committee attempted to list allowable foods for the food stamp program. It was unsuccessful because the committee was unable to derive a list that would be practical and not arbitrary.

Accepted nutrition principles concerning the nutritional quality of food probably would have helped the Congress when it considered the above amendments. Explicitly stated principles may have provided the Congress with a basis for accepting or rejecting the proposals on nutritional grounds.

CONCLUSIONS

Presently, no recognized set of comprehensive nutrition principles exists to guide consumers, Government agencies, and the food industry, in their nutrition decisionmaking. Although some basic nutrition concepts have been formulated by various groups, they lack visibility, recognition, and general acceptance. No formal or generally accepted set of principles exists.

Such principles could provide a more consistent basis for communicating nutrition data, serve to clarify issues, and provide a basis for selecting one alternative among many.

RECOMMENDATION

We recommend that the Secretaries of Agriculture and Health, Education, and Welfare provide the leadership needed to jointly develop and disseminate a set of explicit and generally accepted nutrition principles for aiding consumers, Government, and the food industry in making food- and nutrition-related decisions. Such principles should be developed with the aid of other Federal agencies involved in nutrition decisions and with representatives from the food industry, the scientific community, and the professional nutrition community. One way this can be accomplished is by incorporating the development of nutrition principles into the joint nutrition coordinating activities of the Department of Agriculture and the Department of Health, Education, and Welfare.

The developed principles should be of sufficient detail to provide a fundamental and uniform basis for nutrition-related decisions. The development of such principles could evolve from a review and update of the nutrition education planning concepts developed by the former Interagency Committee on Nutrition Education. It is essential, however, that Federal agencies with nutrition-related activities participate in the development of the nutrition principles.

AGENCY COMMENTS

HEW commended us on the timeliness of the report and its findings. (See app. XIII.) HEW said it is important to recognize that food decisions are increasingly more difficult for consumers and Government alike and that improvements are needed in key areas to help consumers and Government make better decisions about the nutritional quality of food in the diet.

HEW concurred with the concept of developing a set of explicit principles designed to assist consumers and the Government in the selection of foods appropriate to the nutritional needs of individuals and consistent with the promotion and maintenance of optimal health. USDA also agrees that generally accepted nutrition principles would be beneficial to the public and for Federal nutrition programs. (See app. XII.) USDA agrees that it should work with HEW to jointly develop a set of valid nutrition principles for advising consumers and Federal agencies in making nutrition-related decisions.

FTC staff also agreed that a review of nutrition principles would be useful and applauded our recommendation that the review be performed by a multidisciplinary group that

includes consumer and industry representatives. (See app. XIV.) Hopefully, such a review process would culminate in a set of guidelines that could be used by all parties engaged in nutrition education activities without being so general as to be of little use.

On February 4, 1980, while this report was being processed for issuance and subsequent to receiving agency comments, USDA and HEW issued dietary guidelines, "Nutrition and Your Health--Dietary Guidelines for Americans." We believe these dietary guidelines are a major step in the right direction. The seven guidelines are simple, easy-to-understand, and written in clear, direct language. (See p. 21 and app. XV.) A couple of these guidelines, are suitable starting points for developing the kind of nutrition principles that we believe are needed. Other basic principles, however, need to be developed and agreed upon; and the principles need to be made explicit for effective and consistent nutrition decisionmaking.

CHAPTER 3
NEED FOR AUTHORITATIVE GUIDANCE ON
CONTROVERSIAL DIETARY SUBSTANCES

The recommended dietary allowances 1/ (RDAs) serve as a basis for expressing human nutritional needs. The purpose of the RDAs is to recommend levels of intake for nutrients needed to form and maintain body tissues and to carry out other life-sustaining functions. Lack of essential nutrients can eventually result in illness, and in unusual cases, death.

The RDAs are intended to serve as goals for planning food supplies and as guides for interpreting and evaluating the adequacy of food consumption records of groups of healthy people and not individuals. Also, they do not cover special nutrient needs associated with an individual's physical abnormalities or the use of drugs.

The RDAs are developed and updated by the Food and Nutrition Board of the National Research Council, National Academy of Sciences. The Board was established by the Council in the 1940s to advise Government agencies on food and nutrition problems. Its major objective was to encourage patterns of food consumption in the United States that will maintain and promote health.

The RDAs are revised periodically, and the ninth edition was published in February 1980. The eighth edition, published in 1974, recommends intake levels for energy (calories), protein (covering 9 essential amino acids), 10 vitamins, and 6 minerals. The RDAs cover 25 of the 45 to 50 known essential nutrients required by the human body.

No RDAs have been established on several of society's most controversial food components--fat, cholesterol, sugar, salt, alcohol, and fiber. Also, the allowances do not cover all essential nutrients because, for some, there is insufficient evidence to estimate human needs. The lack of such authoritative guidance often creates a dilemma for consumers concerned with diseases statistically associated with these

1/RDAs are not to be confused with "United States Recommended Daily Allowances" (U.S. RDAs) which the Food and Drug Administration developed, based on the RDAs, for food labeling. The U.S. RDAs are a simplified and abbreviated version of the RDAs.

food components. For example, nutrition literature may recommend liver, milk, and eggs as good sources of protein, vitamins A and B, and iron. Other nutrition literature may recommend avoiding these same foods to prevent atherosclerosis because they are high in fat and/or cholesterol. Authoritative guidance on safe levels of intake for these controversial dietary substances would help consumer nutrition decisions.

Even though scientists do not yet fully agree on the cause and effect relationships between food and health, these controversial dietary substances have been statistically associated as partially contributing factors to one or more of the following diseases and disabilities:

<u>Controversial dietary substance</u>	<u>Associated disease or disorder</u>
cholesterol, fat, salt	Coronary heart disease, the Nation's number one cause of death
fiber (too little), fat	Some forms of cancer, such as colon, rectum, and breast cancer, which next to lung cancer, are significant contributors to cancer death
salt	High blood pressure which affects 25 million Americans
alcohol	Liver disease, one of the top five death-causing diseases
sugar	Tooth decay which affects 98 percent of American children
fat, sugar, alcohol	Obesity, which is estimated to affect 20 to 35 percent of all adults

Even though no RDAs have been set for these controversial substances, the Food and Nutrition Board's eighth RDA edition does cite information which correlates food components to certain diseases. For example it states that (1) diets high in sticky forms of refined and processed sugar are linked to dental cavities (2) saturated fats are linked to coronary heart diseases (the American Heart Association recommends a goal of less than 10 percent of total calories from saturated fat), and (3) cholesterol intake is linked to heart disease.

Also recognizing the increasing correlation between diet and disease, the former Senate Select Committee on Nutrition and Human Needs published a staff report in January 1977,

"Dietary Goals for the United States." The report, which has been subject to considerable debate, was intended to provide guidance on whether some food components were essential or nonessential. For example, the report recommended that (1) saturated fat should be reduced to about 10 percent of total calorie intake, (2) cholesterol should be reduced to 300 milligrams per day, and (3) refined and processed sugar should be reduced to about 10 percent of total calorie intake.

GUIDELINES ON CONTROVERSIAL DIETARY
SUBSTANCES COULD ENCOURAGE THE FOOD
INDUSTRY TO RESPOND TO CONSUMER AND
HEALTH CONCERNS

The food industry can play a major role toward improving the public's nutrition knowledge and eating habits through communication with consumers--either in stores or through advertising. While many food manufacturers and retailers believe they have a responsibility to inform the public about the nutritional contents of their products, or nutrition and diet in general, the food industry, like most private enterprise, is profit motivated. Consequently, the industry is usually not motivated to provide nutrition information to consumers unless it ultimately benefits sales. The general feeling is that the consumers must demonstrate an increased interest in, and more importantly, knowledge of nutrition through purchasing decisions. 1/

The food industry typically reacts to or creates consumer demands as a basis for determining the kinds of products to develop and promote. Improving consumers' and Government's ability to make better nutrition decisions could influence the product mix being offered by food retailers. This in turn could provide food manufacturers more certainty on products to develop and promote.

Like consumers and Government, the food industry could also benefit from authoritative dietary guidance on controversial dietary substances and general agreement on nutrition principles. The promulgation of this information could give consumers, Government, and industry a common reference point on certain issues surrounding nutrition. For industry, it could also play a vital role in their product development and promotion activities. These activities, if properly

1/These views are based on contacts with five food manufacturers and three major retailers during our review on "Informing the Public About Nutrition: Federal Agencies Should Do Better," CED-78-75, Mar. 22, 1978.

directed, could serve to educate and aid consumers in their food selection choices.

FTC's proposed children's advertising regulation would benefit from authoritative guidelines on sugar

Consumer groups have requested that FTC restrict advertising of candy and snack foods containing added sugar when the ads are directed primarily at children. As a result of the petitions, the FTC staff prepared a comprehensive report on the issue. The FTC staff recommended, among other things, three possible alternatives in dealing with this issue.

- Ban all televised advertising for any product which is directed to, or seen by, audiences composed of a significant proportion of children who are too young to understand the selling purpose of, or otherwise comprehend or evaluate, the advertising.
- Ban televised advertising, directed to or seen by audiences composed of a significant proportion of older children, for sugared food products whose consumption poses the most serious dental health risks.
- Require televised advertising for sugared food products, which is directed to or seen by audiences composed of a significant proportion of older children, to be balanced by nutritional and/or health disclosures funded by advertisers.

FTC sought public comment on these and other possible alternatives relating to the regulation of television advertising directed at children. The FTC staff does not foresee a final ruling on this issue until late 1980.

The FTC staff has not defined sugared food products. This issue must be resolved before a final rule is promulgated. How "sugared food products" should be defined was one of the many issues addressed in the written comments and oral testimony presented during the comment period and hearings. The staff is hopeful that a definition of sugared food products for purposes of this regulation will be developed based on the evidence presented during the rulemaking proceeding.

Authoritative guidelines on appropriate levels of sugar intake for children and adequate data on sugar contained in food would help the proposed rule.

USDA/HEW EFFORTS TO DEVELOP NUTRITION/DIET GUIDELINES

A USDA/HEW interdepartmental ad hoc committee is developing dietary guidelines to help the public choose the proper foods. The departments have been studying dietary guidelines for about a year. The guidelines will be built on a May 1979 comprehensive evaluation of the state of knowledge of nutrition and health conducted by the American Society for Clinical Nutrition and other published nutrition reports.

HEW's nutrition coordinator told us that the dietary guidelines established will recommend consumption levels for the controversial food components. These components will include fat, cholesterol, sugar, fiber, salt, and alcohol. (See p. 21 for discussion of recent USDA and HEW issuance of dietary guidelines.)

CONCLUSIONS

Authoritative guidance, based on the best scientific information available, is needed on the appropriate intake levels of the controversial dietary substances such as fat, cholesterol, sugar, fiber, salt, and alcohol. These substances are related to a number of widespread diseases and disorders. Even though some of the substances may not be considered essential to health and growth, the associated harmful effect to humans may make them just as important as the nutrients required to maintain bodily functions.

Recognizing that continuing nutrition research may be needed to fully establish guidance on some of these substances, guidance should be provided where possible to enable consumers and the Government to make better food and nutrition decisions. Such guidance combined with proper nutrition education should reduce consumer confusion and Government concern over foods they feel contain too much or too little of these substances. Furthermore, nutrition research should continue to be done on the relationship of the controversial dietary substances and health.

Nutrition research is needed not only to determine appropriate levels of these controversial substances but also to develop standards for nutrients required by the body for which RDAs have not been established.

The need for dietary guidance on these controversial substances is recognized by USDA and HEW. A USDA/HEW interdepartmental ad hoc committee recently developed general dietary guidelines including some general advice on the controversial dietary substances. We believe

the establishment of guidance on the controversial food components is a step in the right direction, but continued work must be done to make the guidelines more specific.

RECOMMENDATION

We recommend that the Secretaries of Agriculture and Health, Education, and Welfare convene a panel of experts, or request that a group be established by an organization such as the Food and Nutrition Board, National Academy of Sciences, to evaluate and recommend any necessary changes on the guidance the USDA/HEW interdepartmental ad hoc committee is developing on intake levels for controversial dietary substances. These controversial substances, which are associated with public health concerns, include fat, cholesterol, sugar, fiber, salt, and alcohol. We believe a review of the USDA/HEW committee guidelines by a body of experts would help the guidelines gain wide public acceptance. Such guidance, which is intended to aid consumers, Government, food industry, and others in making nutrition decisions, should be subject to periodic review and change to ensure they coincide with research findings for these substances.

If USDA and HEW should decide not to issue guidance on controversial dietary substances, we recommend that the Secretaries of both Departments convene a panel of experts to develop such guidance.

AGENCY COMMENTS

In its response to our draft report (see app. XIV), FTC officials said that the need for authoritative guidance of controversial dietary substances is clear. FTC also said a review of the support for dietary recommendations needs to be conducted periodically to incorporate new findings.

Both USDA and HEW said the interdepartmental committee does not plan to establish recommended consumption levels of specific quantities of the controversial food components. (See apps. XII and XIII.) HEW said definitive guidance on levels of intake for dietary substances cannot be made with confidence at this time and that only general directives for prudent food choices will be developed. The Department said it might be possible to suggest reasonable ranges of intake for dietary substances, but in doing so one would have to consider a host of variables, such as age, sex, and activity level, about which information is limited. HEW said it will try to take the most current consensus data from reliable research sources and offer the consumer helpful general guidance.

We believe that if USDA and HEW should decide not to issue specific guidance on the controversial food substances, then the Secretaries of both Departments should convene a panel of experts to develop specific guidance on specific, reasonable levels or ranges of intake.

HEW concurred with our recommendation that outside reputable scientific bodies ought to review the adequacy of any recommended levels of listed dietary substances established by the two Departments. HEW said a commitment to an outside scientific review is in order when updating and/or revising nutrition guideline statements, in particular those statements not based on existing scientific consensus data in order to ensure that the guidance coincides with the most up to date research findings.

FTC officials said they did not object to a review of the dietary guidelines by the Food and Nutrition Board, but they hoped that this would not unduly prolong the finalization of the guidelines.

USDA said it sees little purpose for the guidance statements to be reviewed by other Federal agencies, the food industry, academic and nutrition communities, or outside bodies of experts, because the interdepartmental USDA/HEW ad hoc committee is only summarizing scientific consensus. The Department said it does regularly rely upon the guidance and advice of such outside groups. However, USDA said it cannot wait for the fine tuning of scientific conclusion, but must act when the preponderance of the evidence suggests that to do otherwise would be to neglect its responsibility to provide safe and healthful food programs to the targeted population.

We agree with USDA that when guidelines represent a summary of scientific consensus, then it is unnecessary for an external review of these guidelines. However, we believe, and HEW agrees, that an external review is in order when updating or revising guidelines, especially those not based on scientific consensus to ensure that they coincide with current research findings. External review is also necessary when the Departments develop more specific levels or ranges of intake of the controversial dietary substances.

On February 4, 1980, while this report was being processed for issuance and subsequent to receiving agency comments, USDA and HEW issued general dietary guidelines which deal in part with the controversial dietary substances. (See p. 14 and app. XV.) We believe these guidelines are a step in the right direction. The Departments are already starting to implement these guidelines in some of their food

programs. We encourage them to continue the effort of infusing new nutrition knowledge into Federal food policies and programs. However, we feel that the guidelines' terms such as "too much," "adequate," and "in moderation" should be more specific regarding the consumption of the controversial dietary substances to be more useful to nutritionists and consumers alike.

Despite the welcomed departmental action, our recommendations are still appropriate because they are applicable to present and future efforts to develop more specific dietary guidelines and because of the importance of getting Government-wide cooperation and the active participation, input, and review from as wide a body of experts, practitioners, and users as possible.

CHAPTER 4
NEED FOR MORE CURRENT AND COMPLETE
FOOD COMPOSITION DATA

Proper nutrition decisions are generally based on an individual's energy and nutrient needs. Selecting foods, however, that will provide the essential balance of nutrients and energy depends on adequate data on the nutrient content of food. The lack of available food composition data was viewed by a panel of our consultants and by USDA as a major problem toward making proper nutrition decisions. 1/

USDA and HEW have characterized the present status of food composition data and analyses as limited and neglected. They reported:

"Federal Government laboratories conduct significant numbers of analyses in support of research projects, production, surveillance research, and regulatory compliance. These analyses, however, are selective in terms of nutrients studied. Complete analyses for all nutrients are rarely accomplished. Those nutrients found in small quantities in foods and those that are difficult to analyze are more often neglected. Some analyses are carried out by universities as part of grants and contract research, but these are also limited in scope to a few nutrients or to a limited number of foods. The largest effort in food nutrient analyses is conducted by industry in support of the nutrition labeling program."

An estimated 35,000 brands of food are available to the American consumer. These foods are subject to considerable variation in nutrient composition due to genetic and climatic factors and to exposure to techniques of modern food processing, storage, and cooking. If standards for human requirements are to be practical, more current knowledge on the nutrient composition of foods as consumed and the extent that nutrients are biologically available for absorption and digestion is essential.

1/Comments received on our discussion paper entitled "Junk Food--Nutritious Food: Can They Be Defined?" See app. XI for list of experts we met with to comment on the discussion paper.

The lack of food composition data limits the decisions that the Government and others can make with respect to numerous nutrition activities, including nutrition research, education, surveillance, labeling, advertising, and food delivery programs (i.e., school lunch program). The relatively small effort given to the output of composition data is attributable to the low priority that USDA, the scientific community, and others give to performing nutrient analyses on food and the lack of adequate methods for analyzing the nutritional content of food. In commenting on this statement, USDA said its new role as lead Federal agency for human nutrition research puts numerous demands on it which must be met at a time when budget and personnel constraints demand judicious balancing of efforts to respond even minimally to the various areas of human nutrition research.

LACK OF DATA LIMITS NUTRITION DECISIONS

The lack of food composition data affects the decisions that can be made for a number of nutrition activities. Contained below are a few cases to illustrate the importance of composition data to several of these activities.

Nutrition labeling is dependent on good food composition data

The basic purpose of nutrition labeling is to provide consumers with sufficient factual information on the nutrient content of foods to enable them to make informed choices from the large number of processed foods available. Food and nutrition labeling is regulated by the Food and Drug Administration under the Federal Food, Drug, and Cosmetic Act of 1938, as amended, and the Fair Packaging and Labeling Act, enacted by the Congress in 1966.

In March 1973, FDA established regulations requiring detailed nutritional information on labels on fortified foods or foods for which nutritional claims are made. The labeling regulations require, among other things, a list of the percentage of U.S. RDAs for eight nutrients--protein, vitamin A, vitamin C, thiamin, riboflavin, niacin, calcium, and iron. FDA also encouraged voluntary nutritional labeling for all foods. FDA labeling requirements apply to most foods except meat and poultry, which are regulated by USDA.

FDA identified several basic constraints to fulfilling its nutrition labeling responsibilities, one of which is that "knowledge of the nutrient content of some foods and the natural variation in this content is poor."

Basic to the success of food labeling is adequate nutrition knowledge by the consumer and adequate information on the label. Consumers concerned about controversial dietary substances, need authoritative guidance for these substances followed by appropriate information on the label. Since nutritional food labeling is dependent on food composition data, more and better data on the contents of food is important. 1/

Establishment of a comprehensive
nutritional status monitoring system
depends on the availability of
improved food composition data

The recognized need for improved food composition data was addressed in a joint USDA and HEW proposal to the Congress in May 1978 for a comprehensive Nutritional Status Monitoring System (NSMS). The proposal, which was prepared in response to Public Law 95-113, the Food and Agriculture Act of 1977, identified areas needing improvement for the development of an information system on the nutritional status of the population and its subgroups.

As part of the proposal, USDA and HEW identified the nutritional quality of food as one of the critical elements requiring action in order to have a comprehensive NSMS. The proposal stated that

"In order to adequately conduct dietary assessments and to provide ongoing monitoring of the nutrients present in individual foods and groups of food as consumed, extensive analyses of the nutrient composition of foods and food groups are required."

The proposal presented a number of recommendations in which HEW and USDA would collaborate in the development of a comprehensive NSMS. To improve the status of information required on the nutritional quality of food, they made the following recommendations.

1. Expand the data base of information about the nutrient and nonnutrient content of individual food items.

1/In an attempt to improve nutrition labeling, FDA, USDA, and FTC have held extensive public hearings since 1978 to obtain input from the public on formulating food labeling proposals. A joint tentative proposal was announced and published in December 1979 for public comment.

2. Expand studies to describe the nutrient content of total diets and commodity groups.
3. Conduct a program of analyses to describe the nutrient content of meals available in restaurants, institutions, and the retail market.
4. Conduct a research program to improve methods of nutrient analysis.

In the case of the need for improvement in method development for analyzing the nutrients in food, the proposal identified the need for new automated methods to handle the increasing number of foods available and increasing demand for nutrition data. The proposal points out, however, that there is inadequate funding to develop the needed automated approach for assessing the nutrient content of food.

As of October 1979, USDA and HEW were in the process of developing an implementation plan to the NSMS proposal. The draft plan, identifies the activities needed and the agencies responsible to support the recommendations. The activities listed also contain a timetable showing whether the activity is ongoing or when it is planned to start and, in some cases, the completion date. The plan appeared to be fairly comprehensive in the steps listed to improve the availability of food composition information. Proper execution of the steps to obtain such data should aid in satisfying the need for improved composition data.

USDA's and FTC's proposed criteria
for defining the nutritional
characteristics of food depends
on adequate food composition data

As discussed in chapter 2, USDA and FTC proposed criteria that allows the user to make distinctions between certain foods based on their nutritional characteristics. The distinction is based on use of the nutrient density method which compares the nutrient composition of food to the nutrient requirements of the body. Consequently, a lack of adequate data on the nutritional content of food would limit the usefulness of the nutrient density method in meeting each agency's objective.

--FTC proposed the nutrient density method as a basis for controlling nutritional claims by advertisers. The proposal restricted claims to foods that contained protein and at least 3 other nutrients, of the 20 considered, in amounts of at least 10 percent

of the U.S. RDA for each 100 calories. In addition, a serving of the food must provide at least 10 percent of the U.S. RDA for at least one nutrient.

--USDA proposed use of the nutrient density method for controlling the sale of competitive foods. These are foods that fail to provide, in one serving or a portion with 100 calories, at least 5 percent of the U.S. RDAs for any one of eight nutrients required for food labeling by FDA.

USDA identified the following problems with respect to the inadequacy of food composition data for defining the nutritional quality of food.

1. Available data is described generically and it is difficult to distinguish among brands and formulas for similar products. Some products, particularly formulated products, can be described in similar ways; however, they may contain different ingredients or proportions of ingredients. For example, peanut butter cookies can be made with varying amounts of peanut butter, sugar, flour, and other ingredients. The formula that is used to make the cookie will have an influence on the nutrient content of the product. This type of variation is reflected only to a limited extent in the food composition data that is available currently.
2. There is a lack of standard serving sizes for available data. The serving can vary for different foods and even for the same food. As a result it is difficult to compare foods.
3. Available data is insufficient to reflect current public health concerns. Specifically, composition data is limited for fiber and for many nutrients considered essential to human development.
4. The bioavailability of nutrients is not reflected in the food composition data. Since nutrients interact with each other and are absorbed by the body in various ways, it is not sufficient simply to know what nutrients a food contains. (See pp. 29 and 30 for discussion on the bioavailability of foods.)

The successful implementation of the USDA and FTC criteria for making a distinction in the nutritional quality of different foods will depend on the adequacy of available food composition data.

GAPS IN FOOD COMPOSITION KNOWLEDGE

Great gaps exist in the information available for many food items including prepared foods such as baked products, candies, frozen dinners, fruits, vegetables, snack foods, and foods served by restaurants and institutions. According to USDA officials, most of the data compiled has been for commodity foods, such as dairy products. In terms of nutrients, almost no data is available on such nutrients in foods as simple-sugars; starch; nutrient fiber; trans-unsaturated fatty acids; vitamins A, B6, B12, D, E; biotin; choline; pantothenic acid; chromium; copper; cobalt; fluorine; iodine; manganese; nickel; selenium; silicon; tin; vanadium; and zinc. ^{1/}

Information on food composition is available from a number of sources, including USDA, the Food and Agricultural Organization, the food industry, and published articles by nutrition scientists. The food industry contributes to the knowledge of food composition through nutrient analyses for the purpose of quality control and product labeling. FDA also provides information by conducting nutrient analyses of foods and developing nutrient analytical methodology.

USDA is a major source of food composition data through its National Nutrient Data Bank. The bank acts as a central repository for nutrient composition data providing detailed information on individual food products and aggregated data on classes of food products. USDA is currently gathering, evaluating, and deriving new values for the food contents from available nutrient data. USDA said that many food companies have supplied it with a considerable amount of data on certain foods and nutrients as a result of the analyses required for nutrition labeling. The data from most food companies, however, is limited to the nutrient analyses required for food labeling. (See app. VI.) Even though this information is vital, many important nutrients are not covered by the labeling regulations.

USDA is updating its Agriculture Handbook No. 8, "Composition of Foods--Raw, Processed, Prepared," a major food composition reference. This source, which covers about 2,500 foods, is being updated to report the increasing information available on nutrients and food products. Its last complete revision was in 1963. As of September 1979, only

^{1/}See appendix VII for USDA's assessment of the state of knowledge of nutrient composition.

5 of the 20 sections had been published, with the final section scheduled for publication in 1983.

Many nutritionists, dietitians, and other users of the data have criticized the slowness of updating and disseminating available food composition data. The USDA handbooks are being issued in sections to expedite the release of available data. The current revision should enhance the availability of more reliable food composition values, but will be unable to express all nutrients in all foods because of the lack of available data--due to the lack of analyses or the lack of reliable methods to perform such analyses.

Several deficiencies in the data's accuracy were identified in our earlier report. ^{1/} In addition to the lack of data on many nutrients in food, the report discusses the lack of information on the effect new and innovative food practices have on nutrients in food. These include short-time canning, new dehydration and freezing techniques, continuous dough techniques for bread, precooked frozen foods, microwave heating, and boil-in-the-bag cookery.

The usefulness of foods, even within the same category, varies to the extent that nutrients are biologically available for absorption and digestion. The bioavailability of a nutrient refers to the degree that a nutrient, once consumed, becomes available to and usable by the body. Bioavailability depends on several factors. One is the type of food providing the nutrient. For example, heme iron, the type found in red meats, is absorbed far more efficiently than the iron in cereal foods. A second factor is the overall composition of the diet. For example, iron is absorbed more efficiently when ascorbic acid from other foods is present.

Our earlier report also pointed out that the composition tables do not distinguish between those nutrients that are biologically available for absorption and digestion and those that are not.

"Present composition tables generally give a total value for a nutrient even though a large portion may be nutritionally useless. In some cases, a nutrient's chemical form can affect its biological availability. * * *

^{1/}"Federal Human Nutrition Research Needs A Coordinated Approach to Advance Nutrition Knowledge," PSAD-77-156, Mar. 28, 1978.

In other cases, interactions among nutrients and nonnutrient substances in foods can alter biological availability. * * * Composition tables do not recognize the limiting effects of such interactions nor do they include composition data on nutrient antagonists * * * in foods."

Although USDA concurred with the above, it stated that there is no clear-cut basis for reporting the biological availability portion because many important factors determine it.

MAJOR CAUSES FOR GAPS IN FOOD COMPOSITION DATA

USDA has attributed the gaps in food composition data to the low priority given to performing nutrient analyses on food at a time when there was a proliferation of new foods and the lack of adequate methods for analyzing the nutritional content of food.

Low priority for analyzing nutrients in food

The low priority for compiling and assessing the nutritional content of food has been a major contributor to food composition gaps. The Chief of the Nutrient Composition Laboratory told us that from the 1950s to the 1970s there was little interest in analyzing the nutritional content of food. It was also during this period that significant changes in the number and types of available foods occurred, such as a large increase in convenience foods. New formulations and precooking became common. Because of the lack of emphasis on performing food composition analyses, coupled with a changing structure in available foods, a gap resulted in the food composition data available.

During the 1970s, there was a greater interest toward filling the gaps in food composition data. In 1973, nutrition labeling required the food industry to present composition data on the labels of certain products. Also, in 1975, USDA established the Nutrient Composition Laboratory to increase the knowledge on nutrient composition of food by analyzing the foods in the American diet, developing new analytic methodologies, and measuring the nutritional effects on food as it moves from the farm to the table.

According to the Chief of the Nutrient Composition Laboratory, most of its analyses have been devoted to those nutrients identified with public health problems. (See app. VIII.) Other known nutrients, for example cobalt, vanadium, and tin, receive little attention because the symptoms of

deficiency are unknown, unrecognized, or nonexistent. Consequently scant information exists on these nutrients and foods containing them.

Inadequate methods for analyzing nutrients in food

Most methods used in composition work today are adaptations of analytical procedures devised 30 to 40 years ago. As a result, they are labor-intensive, time consuming, expensive, and, in some cases, unreliable. To develop more current and comprehensive food composition tables, research is needed to improve methods of determining the effects of food production, processing, and preparation procedures on food composition and nutrient availability.

USDA's assessment of methods developed for analyzing nutrients in foods ranges from little or none to sufficient. (See app. IX.) It identifies a need for more accurate and inexpensive methods for the extraction, identification, and measurement of nutrients in food. The USDA publication "Food and Nutrition for the 1980's" (April 1979) states:

"If food composition analysis is to meet the challenge posed by our rapidly changing food supply and consumer demands for information on food composition, we need more rapid methods of analysis for certain food constituents; more precise and standardized methods for analyzing other food components; and eventual analysis methods which distinguish availability between different forms of a nutrient."

USDA's Chief of the Nutrient Composition Laboratory told us they are in the process of developing improved methods for assessing the nutritive value of food. The Chief believes that within a few years automated methods could be available to analyze some nutrients where more data is needed. The rapid development of microcomputers could play a major role in the advancement of methods.

The Laboratory Chief told us the potential output of composition data and the development of methods for analyzing nutrients is being slowed by the lack of funds and personnel. With the present funding level of about \$2 million for the Laboratory's and the Nutrient Data Bank's output of composition data, the Chief feels that the rate of data acquisition is too slow to make a major impact. He estimates that nearly \$7 million per year for 5 years is needed to make a major impact on available nutrient composition data for a number of food components of public

health concern, including fat, fiber, and sugar. (See app. X.) 1/

The increased funding would also be used to disseminate the composition data to the public and the scientific community and to develop more methods for analyzing foods. Also needed is an increase in the number of scientists and support personnel. Twenty scientists are presently involved in the USDA output of composition data. The Laboratory Chief feels that to make a significant impact there should be about 50 scientists plus support personnel.

Developing an adequate program for nutrient composition data requires time as well as funding and personnel. The Laboratory Chief told us that the rate of increase of the funding between 1975 and 1979 was appropriate for the tasks at hand since a great deal of planning effort was required for start up. The Chief told us that the foundation of a good program has been laid and that USDA can now make significant strides in the output of composition data with additional personnel and funding. We did not attempt to determine the adequacy of the current funding and personnel levels, but all the experts we talked to reiterated the importance and need for more research to obtain current and complete nutrient composition data.

The increased need for food composition research and data was also highlighted by a number of Government, industry, and academic witnesses at the recent hearings held in September 1979 by the House Subcommittee on Science, Research, and Technology, Committee on Science and Technology, on nutrition research methods and technology.

In the future, some ways to improve food composition data will include: developing rapid, automated, and inexpensive techniques of analyzing foods, including the handling of the test food samples; expanding the capability and availability of computers to provide data immediately to more users such as dietitians; conducting research based on a plan that lists priorities of foods and nutrients that need to be analyzed; developing common reference standards for foods to enable comparison of data produced from different laboratories and researchers; and transferring the technologies and advancements of analytical chemistry to the analysis of food.

1/The current and increased funding levels do not include USDA overhead amounts.

CONCLUSIONS

In recent decades, the American food supply has changed so that more than half of our diet now consists of processed foods rather than fresh produce. Consumer awareness and concern about food and dietary habits and their relationship to health appears to be increasing.

Sound nutrition decisions depend on adequate data on foods' ability to satisfy human needs. The information available, however, on the nutrient composition of many foods is lacking.

RECOMMENDATION

We recommend that the Secretary of Agriculture examine the alternatives needed to improve food composition methodology, research, data assembly, analysis, and dissemination; evaluate the Department's priorities regarding food composition data; and place greater emphasis on obtaining timely output of more complete and needed food composition data. Increased efforts by USDA to gather, analyze, and disseminate up-to-date information on the nutrient composition of food would aid in promoting better nutrition decisions.

AGENCY COMMENTS

FTC officials support our recommendation regarding the need for more current and comprehensive data on the nutrient content of food. (See app. XIV.) FTC said its participation with USDA and FDA in the food labeling hearings and its desire to encourage manufacturers to provide more nutrition information in advertising has clearly shown the pressing nature of the need for more and better data. FTC said, however, that a policy on nutrition principles and guidance needs to be developed even though complete food composition data is not available.

USDA commented on our statement that it has not considered food composition analysis a priority project. The Department said its new role as lead agency for human nutrition research has brought numerous demands which must be met at a time when both national budget constraints and personnel ceilings demand judicious balancing of efforts in order to respond even minimally to the various areas of human nutrition research which the Congress and the Administration see as important for the 1980s. (See app. XII.) Current food composition analysis is hindered by the lack of sophisticated analytical techniques and the inability of a single Government agency to keep pace with the introduction of new food items in the marketplace. USDA said we should encourage the food industry to help keep the data bank current by providing results of analyses of its

products or by requesting that USDA conduct these analyses for industry on a cost reimbursement basis.

We agree that efforts and incentives should be developed to encourage industry to continue and to expand its food analysis and to provide the results to USDA. We believe, however, it is primarily USDA's and FDA's responsibility to encourage industry. We also agree with USDA's comments that current food composition analysis is hindered by the lack of adequate analytical methods and the inability to keep pace with the many new food items.

We are aware of USDA budget and personnel ceiling constraints. We recognize that USDA has made some efforts in recent years to expedite the badly needed updating of food composition data. However, the last complete published update of the "Composition of Foods--Raw, Processed, Prepared," commonly known as USDA Handbook 8, was in 1963, 17 years ago. We feel, especially in view of these problems, that USDA needs to reevaluate its priorities regarding food composition data and place a greater emphasis on obtaining more timely output of more complete and needed food composition data. USDA, HEW, and most of the experts we contacted agreed that good food composition data is important and needed because it is a basis for nutrition research, surveillance, education, information, food delivery programs, and food labeling and advertising regulations.

CHAPTER 5

SCOPE OF REVIEW

Food decisions are becoming increasingly difficult for consumers and Government to make due to the many thousands of food items to choose from, a changing lifestyle that generally requires consumption of fewer calories, and a growing desire to select foods that promote good health. Current and complete information on the nutritional quality of food could help consumers determine what foods and diet are best for their health and help the Government carry out its regulatory and food program responsibilities consistently and effectively.

This review was made to (1) assess the bases used by governmental agencies, consumers, and others to judge the nutritional quality of food, (2) examine the applicability and usefulness of various methods of judging the nutritional quality of food, and (3) identify factors considered important to strengthening the basis for judging the relative value of foods.

For carrying out the review objectives we conducted a literature search to identify information on various methods being used to define and distinguish the nutritional quality of foods. We held discussions with officials at the U.S. Departments of Agriculture and Health, Education, and Welfare and the Federal Trade Commission regarding their efforts in this area. Discussions were also held with nutritionists, the Dairy Council of California, and the California Department of Health. We contracted with Utah State University for their technical assistance. We also held a workshop with industry and academic representatives to obtain their comments on our preliminary views. The contents of this report do not necessarily represent the views of all the experts we contacted.

We also attended joint FDA, USDA, and FTC food labeling hearings in Washington, D.C., and San Francisco, California. We reviewed written comments received on proposed regulations by FTC on nutritional claims by food advertisers and by USDA on low-nutritious foods being sold in competition with the school lunch and breakfast programs.

BASIC NUTRITION CONCEPTS DEVELOPED BY THE
INTERAGENCY COMMITTEE ON NUTRITION EDUCATION

The basic concepts are:

1. Nutrition is the way the body uses food.
 - We eat to live, to grow, to keep healthy and well, and to get energy for work and play.
2. Food is made up of different nutrients needed for growth and health. Nutrients include proteins, carbohydrates, fats, minerals, and vitamins.
 - All nutrients needed by the body are available through food.
 - Many kinds and combinations of food can lead to a well-balanced diet.
 - No single food has all the nutrients needed for good growth and health.
 - Each nutrient has specific uses in the body.
 - Most nutrients do their best work in the body when teamed with other nutrients.
3. All persons, throughout life, have need for the same nutrients, but in varying amounts.
 - The amounts of nutrients needed are influenced by age, sex, body size, activity, state of health, and heredity.
4. The way food is handled influences the amount of nutrients in food, its safety, quality, appearance, taste, acceptability, and cost.
 - Handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating.

NUTRITION EDUCATION CONCEPTS DEVELOPED
BY THE 1969 WHITE HOUSE CONFERENCE ON
FOOD, NUTRITION, AND HEALTH

1. Nutrition is the process by which food and other substances eaten become you. The food we eat enables us to live, to grow, to keep healthy and well, and to get energy for work and play.
2. Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body.
 - (a) Each nutrient has specific uses in the body.
 - (b) For the healthful individual the nutrients needed by the body are usually available through food.
 - (c) Many kinds and combinations of food can lead to a well-balanced diet.
 - (d) No natural food, by itself, has all the nutrients needed for full growth and health.
3. The way a food is handled influences the amount of nutrients in the food, its safety, appearance, taste, and cost; handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating.
4. All persons, throughout life, have need for about the same nutrients, but in varying amounts.
 - (a) The amounts needed are influenced by age, sex, size, activity, specific conditions of growth, and state of health, altered somewhat by environmental stress.
 - (b) Suggestions for kinds and needed amounts of nutrients are made by scientists who continuously revise the suggestions in light of the findings of new research.

- (c) A daily food guide is helpful in translating the technical information into terms of everyday foods suitable for individuals and families.
- 5. Food use relates to the cultural, social, economic, and psychological aspects of living as well as to the physiological aspects.
 - (a) Food is culturally defined.
 - (b) Food selection is an individual act but it is usually influenced by social and cultural sanctions.
 - (c) Food can be chosen so as to fulfill physiological needs and at the same time satisfy social, cultural, and psychological wants.
 - (d) Attitudes toward food are a culmination of many experiences, past and present.
- 6. The nutrients, singly and in combinations of chemical substances simulating natural foods, are available in the market; these may vary widely in usefulness, safety of use, and economy.
- 7. Foods play an important role in the physical and psychological health of a society or a nation just as it does for the individual and the family.
 - (a) The maintenance of good nutrition for the larger units of society involves many matters of public concern.
 - (b) Nutrition knowledge and social consciousness enable citizens to participate intelligently in the adoption of public policy affecting the nutrition of people around the world.

THE PENNSYLVANIA STATE UNIVERSITY NUTRITION CONCEPTSNutrients are essential to life and health.

1. Dietary "essential" nutrients are chemical substances which the body either cannot produce or produce in sufficient quantities; nutrients, therefore, must be obtained from the environment.
2. Dietary essential nutrients must be supplied in adequate amounts and in sufficient frequency throughout the life cycle.
3. The need for nutrients is lifelong, but the relative amounts and proportions of nutrients needed are influenced by age, sex, body size, physical activity, specific conditions of growth, physical condition, state of health, and other individual variations.
4. Varying amounts, proportions, and combinations of nutrients are found in plant and animal sources which serve as food.
5. A healthy individual's needs for nutrients usually can be satisfied by careful selection of various foods.
6. Nutrients as body constituents are distributed throughout the body; tissue thresholds and storage are characteristic of each tissue and each nutrient. Nutrients may be mobilized for use.
7. Nutrients must be supplied to the body on a regular basis in order to maintain normal body functions and prevent health impairment. Continued inadequate provision of nutrients results in physiological dysfunction of the individual.
8. Nutrient intakes exceeding levels needed for immediate use and limited reserve are of no nutritional benefit, and, in some cases, may be harmful.

9. The body is more susceptible to physiological disadvantage when there is inadequate nutrition during critical periods of growth and development, pregnancy, lactation, or recovery from illness and trauma, than at other times.
10. Scientists conduct research to identify essential nutrients and the amounts of these nutrients needed by man. Periodically, recommended dietary allowances are revised as a result of new research findings and interpretations.

Food serves biological, psychological, social, and cultural needs.

1. Food can provide sufficient kinds and quantities of nutrients to maintain the health of individuals.
2. No one natural food contains nutrients in the appropriate amounts and combinations to meet total nutritional needs. Therefore, a diet should include a variety of foods.
3. The way a food is handled influences the amount of nutrients in the food, its safety, appearance, flavor and cost. Everything that happens to food during growth, transportation, processing, storage and preparation for eating, affects its overall value.
4. Non-nutritive fiber in food is valuable to the function and health of the gastrointestinal tract.
5. With training and opportunity, it is possible to plan, select and/or prepare a nutritionally adequate diet that is also psychologically and socially acceptable within many different cultural food patterns.
6. Foods are not in themselves "good" or "bad" nutritionally. The nutritional benefit of a food should be assessed in view of the contribution it makes to meeting total nutrient needs for the individual.
7. Foods included in a diet constitute a nutritionally valuable food pattern when they are selected within given periods of time to supply a balanced array of nutrients in appropriate quantities. A recommended food pattern if followed is conducive to good health, but will not in and of itself assure good health.

APPENDIX III

APPENDIX III

8. It may be desirable to reduce or increase consumption of certain foods with special nutritional properties at given stages of life in order to promote long-term health and survival.
9. The energy value of one's diet and one's energy expenditure should be balanced to maintain or to achieve a desirable body weight which is associated with good health.
10. Foods play an important role in the physical and psychological health of a society or a nation just as they do for the individual, the family, or living unit.

EXAMPLES OF EFFORTS TO DEFINE
THE NUTRITIONAL QUALITY OF FOOD

<u>Source</u>	<u>Bases and/or purpose of deriving definition</u>	<u>Definition</u>
Federal Trade Commission	Nutrient Density Concept/1974 proposed Trade Regulation Rule on Food Adverti- sing--nourishment claims	"An advertisement shall not represent food to be "nourish- ing," "wholesome," or "nutri- tious," or use any other term of similiar import which in any way states, suggests, or implies that such food is a valuable or significant source of nutrition, unless a serving of the food contains at least four nutrients, including pro- tein each of which is present in an amount of at least 10 percent of the U.S. RDA per 100 calories, and unless at least one of such nutrients is present in a serving of such food in an amount of at least 10 percent of the U.S. RDA;***."
Department of Agriculture		
Agriculture Research Service	1976 House Agriculture Hearings	Any food that has the poten- tial for nourishing the body is considered nutritious.
Food and Nutrition Service	1978 proposed rule to define foods not to be sold in competi- tion with lunches served under the National School Lunch Program	Foods of low nutritional value are those that do not make a positive nutritional contribution in terms of their overall impact on children's diets, dietary habits and appetites. These foods include soda water, frozen desserts, candy and chewing gum.

APPENDIX IV

APPENDIX IV

<u>Source</u>	<u>Bases and/or purpose of deriving definition</u>	<u>Definition</u>
	Nutrient Density Concept/1979 proposed rule to define foods not to be sold in competition with lunches served under the National School Lunch Program	Limit the sale of any food which does not have at least five percent of the U.S. RDA for one or more of eight basic nutrients. The excluded foods are certain candies, chewing gum, soda water, and water ices.
Food and Drug Administration	RDAs/1973 nutritional labeling standards to aid consumers in making food selection.	Nutritional quality not specifically defined, except to provide for nutritional information on food labels when the food has been fortified by one or more nutrients that were not present or were present in small amounts in the food before processing and/or when nutritional claims are made.
Society for Nutrition Education	Nutrient Density Concept. Recommendations on the 1974 FTC's proposed Trade Regulation on Food Advertising--nourishment claims.	For a food to be called "nutritious" it should contain either (1) at least four nutrients in equal proportion to its energy (calories) or (2) at least two nutrients in double proportion to its energy contribution.
Guarth Hansen, Professor of Nutrition, Utah State University	Nutrient Density Concept	A food is nutritious if it has at least four nutrients in equal proportion to calories for the leader nutrients intrinsically present. Leader nutrients are the nutrients commonly listed on the food label. Intrinsically present would be nutrients present in the foods when they are picked or grown.

APPENDIX IV

APPENDIX IV

<u>Source</u>	<u>Bases and/or purpose of deriving definition</u>	<u>Definition</u>
Paul La Chance, Professor of Nutrition, Rutgers University		The nutritional quality of food is measured by summing up all the percentages of U.S. RDA for the nutrients in a food and deriving an average U.S. RDA. This average is then divided into the caloric value of a serving. The lower the amount, the greater its nutritional contribution versus the calories consumed.
Annette Dickinson & William Thompson of Council for Responsible Nutrition	Nutrient Density Concept	A food with no nutrients that are equal or greater in proportion to the calories might be called a "junk food." A food with a few nutrients equal or greater in proportion to its calories is a "good" food and a food with more than a few nutrients greater in proportion to its calories is a "stupendous" food.
Center for Science in the Public Interest		A nutritious food is one that contains no more than 10 percent of total calories from added sugar, 20 percent from added fat and oil, less than 0.5 percent added salt, and no artificial coloring or sodium nitrate; products containing any grain should be made from whole grain (not refined flour).

APPENDIX IV

APPENDIX IV

<u>Source</u>	<u>Bases and/or purpose of deriving definition</u>	<u>Definition</u>
California Child Nutri- tion Advisory Council to the State Board of Education	1978 position paper on the nutrition quality of foods avail- able to students in California public schools	The Council recommends that certain foods be prohibited from schools during the regu- lar school day because of their low nutritional quality. They include: carbonated beverages, non- fruit soft drinks, candy, frozen nonfruit ice bars, and chewing gum with sugar.
California Assembly Bill 3406	1978 bill defining foods that can be sold in schools	The bill requires that nutri- tious foods be made available in grades K-12, and these foods comprise a minimum of 50 percent of all food items offered for sale. The bill includes a selection of foods it considers nutritious. The bill also requires the California Department of Education formulate guide- lines for the provision of nutritious foods, further define choices of nutritious foods, and adopt rules and regulations for the enforce- ment of the bill's provisions.
California Assembly Bill 1755	1977 bill defining foods not to be sold in schools	The bill prohibits the sale of "low nutritional food" in any elementary, inter- mediate, or junior high school. Low nutritional food is defined as any food in which 25 percent or more of its caloric value is de- rived from added sugar or any food in which 40 percent or more of its caloric value is derived from added fat.



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

October 5, 1979

Margaret O'K. Glavin
Director, School Programs Division,
Food and Nutrition Service
Department of Agriculture
Washington, D.C. 20250

Dear Ms. Glavin:

The purpose of this letter is to comment on certain aspects of the Department of Agriculture's proposed rule contained in the Federal Register dated July 6, 1979. The rule concerns the sale of foods in competition with meals served under the National School Lunch Program and the School Breakfast Program as specified by Section 17 of Public Law 95-166.

The General Accounting Office has done some work in determining ways of judging the nutritional quality of food in a diet. Our work was undertaken in part to examine the applicability and usefulness of various methods being expounded for judging the nutritional quality of food, and to identify factors considered important to strengthening the basis for judging the relative value of food. As part of this effort, we met with officials of the Departments of Agriculture and Health, Education and Welfare, and the Federal Trade Commission. We also met with many private and public organizations.

Based on this work, we believe that guidance on the nutritional value of foods is important but difficult to provide in a simple manner. On the one hand, public interest in eating for better health appears to favor categorizing foods as good or bad. On the other hand, nutrition scientists appear to be taking the position that an individual food must be considered as part of a total diet for a person or group and cannot be meaningfully ranked outside of a diet. The latter position is particularly relevant to the proposed regulation because it attempts to categorize individual foods for the diets of millions of children with many different dietary needs. The implications of this regulation, however, go beyond the School Lunch and Breakfast Programs insofar as they become the primary Federal judgement

on food values and can become, in the absence of other authoritative guides, the main reference on food value for other segments of the population.

In light of the importance of the proposed rule not only for the breakfast and lunch program participants, but also for the general population as well, we believe that these regulations should be based on generally accepted nutrition principles which include definitive guidance on fortification as well as means of determining nutritional value.

Overall, we feel that there are two major weaknesses of the proposed rule that will inhibit its usefulness for the two programs; namely, the lack of a definitive statement on fortification and the general lack of a consensus on how to judge the nutritional value of a single food.

FORTIFICATION

The proposed rule basically states that any food which does not have at least five percent of the U.S. Recommended Dietary Allowance for any of eight specified nutrients cannot be sold at schools until after the last lunch period. There is nothing in the proposed rule to prevent food manufacturers, whose products fail to meet this criterion, from adding the required nutrients to satisfy the rule. As written, the proposed rule could act as an incentive for some food manufacturers to fortify their products to meet the USDA criterion.

We do not intend to infer that fortification of food is bad because the benefits of fortification as a nutritional supplement have been well established in controlling such deficiency diseases as rickets, pellagra, and goiter. Some of the nutrients, however, that have been identified as essential for human health and development are also known to be toxic at appreciable levels above recognized requirements. The levels at which acute toxicity occurs have not been determined for most essential vitamins and minerals. For those where data are available, the margin of safety is sometimes small--for vitamin D, only five times the recommended daily intake is toxic in some individuals.

There are no Federal agencies that have overall regulatory control over requiring or prohibiting food fortification. The agency with primary involvement with food fortification is FDA, which requires nutrition labeling on fortified foods.

A generally accepted principle on fortification could provide guidance on when a product should be fortified and when a fortified product would be either acceptable or not acceptable. An attempt was made in 1974 by the Commissioner

of the Food and Drug Administration to propose a set of criteria to prevent irrational fortification, but it was never finalized. 1/ The proposed criteria would have controlled the nutrient additions by basing it on a . . .

"percentage of the U.S. RDA equal to the calories contribution of the food, to the daily calorie standard. The Commissioner proposes to set the daily calorie standard at 2800 kilocalories. Thus, a food which contributes 280 kilocalories per serving (10 percent of the daily calorie standard) could have vitamins, minerals, and protein added per serving to a level equal to 10 percent of the U.S. RDA."

Recognizing the lack of guidance and information available on safe levels of intake for selected nutrients, care needs to be taken in establishing final regulations which could have the potential of encouraging fortification proliferation. Consequently, we believe that consideration of the fortification issue should be an essential factor to the Department's regulation on the sale of foods in competition with meals served under the National School Lunch and School Breakfast Programs.

NUTRITIONAL VALUE OF FOOD

The proposed criteria appears to be an attempt to derive a basis for justifying the restriction of the sale of the "minimal nutritional value" food categories in competition with the School Lunch Program previously recommended for restriction in an unsuccessful 1978 proposal. Both the 1978 and 1979 proposals attempt to restrict the same food categories--some candy, chewing gum, soda water, and frozen desserts.

The proposed regulations lack substantive support to show that the food categories defined as "minimal nutritional value" were directly affecting children's diets, dietary habits and appetites. Nor does the regulations state how the elimination of the food categories selected will improve children's diets, habits and appetites. Because all food has some value, and no food in isolation from the diet can meaningfully be characterized as good or bad, it seems that evidence supporting a detrimental effect by the food categories selected on children's diets is needed to substantiate the arguments represented

1/ Federal Register, Volume 39, No. 116, June 14, 1974, p. 20900-20904.

in the proposed rule. We believe the proposed regulation would be more generally accepted and supported by the scientific community, food manufacturers, and the schools if it was better supported by evidence that the restricted food categories have had a detrimental effect and that their elimination would be beneficial to the nutritional health of students.

The proposed regulation would limit the sale of any food in competition with the school meals, which does not have at least five percent of the U.S. RDA for one or more of eight basic nutrients. The criteria in this proposal are based on a number of quantitative variables. The selection of which variables to use becomes particularly important because this determines the number and types of foods that can be sold competitively. A change in any of the variables could affect which foods are acceptable or unacceptable. For example, an apple would no longer be an acceptable food if the criterion was changed from "one or more" to "two or more" of the eight nutrients that meet the five percent criteria. The reason is that an apple contains only one nutrient that has at least five percent of the U.S. RDA.

In 1974, the Federal Trade Commission attempted to develop standards for controlling nutrition claims of food advertisers by proposing criteria similar to the USDA proposed regulations. The FTC's proposed regulations, which have not yet been finalized, established uniform standards for use of the terms "nourishing," "wholesome," or "nutritious" in advertising. Specifically, the proposed criteria provides that before a food advertiser could make such claim a food must

- contain protein and at least three other nutrients in amounts of at least 10 percent of the U.S. RDA for each 100 calories, and

- a serving of the food must provide at least 10 percent of the U.S. RDA for at least one nutrient.

Based on an FTC funded study, the Society for Nutrition Education tested the criteria and found only 46 of 615 foods met the standard. Consequently, this definition excluded many food items with established roles in the U.S. diet such as milk and milk products, fruits, breads, cereals, and most meat items. When the standard was reduced to 2 nutrients, 221 of 615 foods qualified. Many of the foods previously excluded now became acceptable foods. Even this standard, however, excluded such foods as apples, peanut butter, and enriched rice.

A further example of how a variable can effect this proposed regulation relates to the standard used. The proposed regulation is based on U.S. RDAs, but one could argue that

APPENDIX V

APPENDIX V

the RDA standards should be used because the U.S. RDAs overstate the needs of most children. Contained below is a comparison of the U.S. RDAs and RDAs for children ages 4 to 18 and the eight specified nutrients.

	U.S. RDAs	1974 RDAs					
		AGES					
		MALES				FEMALES	
		4-6	7-10	11-14	15-18	11-14	15-18
Protein (grams)	65	30	36	44	54	44	48
Vitamin A (I.U.)	5000	2500	3300	5000	5000	4000	4000
Vitamin C (milligrams)	60	40	40	45	45	45	45
Niacin (milligrams)	20	12	16	18	20	16	14
Riboflavin (milligrams)	1.7	1.1	1.2	1.5	1.8	1.3	1.4
Thiamin (milligrams)	1.5	0.9	1.2	1.4	1.5	1.2	1.1
Calcium (milligrams)	1000	800	800	1200	1200	1200	1200
Iron (milligrams)	18	10	10	18	18	18	18

One reason the U.S. RDA's are overstated is that they are based on the 1968 RDAs and do not reflect the latest edition of the Recommended Dietary Allowances.

Use of the RDAs as a basis would require different calculations for each age grouping. It would also result in different competitive foods being acceptable for each age grouping.

Besides USDA, others have attempted to derive a definition for classifying the nutritional quality of food. Appendix I contains some of these definitions, including those of USDA, which either (1) name foods that are considered nutritious or not nutritious, (2) specify a nutrient-to-calorie ratio for the number of nutrients that a food must contain before it could be considered nutritious, or (3) set limits on the amount of sugar, fat, salt, and/or artificial ingredients a food should contain before it could be considered acceptable or unacceptable. A major drawback of these definitions is the lack of a consensus on how to individually judge the nutritional quality of the food we consume. There is no general agreement on how much of a nutrient should be present

in a food, or how many nutrients a food should contain to be considered nutritious.

We recognize and appreciate the problem of devising a rule for the nutritional quality of individual foods that would be applicable to millions of school age children, many with different energy and nutrient needs. This problem further raises the issue of whether it is practical to categorize a single food as being nutritious. For example, a calorie dense food may be more useful for a growing athletic child who needs the extra calories, while such a food may be of limited value to an inactive child who needs less calories.

- - -

Because of the lack of generally accepted nutrition principles to guide USDA in authoritatively deciding the issues of fortification and nutritiousness, we believe USDA should seek guidance from the scientific community and take the lead in getting any needed research performed. ^{1/} Such guidance and research could serve to build a consensus on a final regulation.

Acquiring a body of knowledge on this issue will likely cause a stretchout of any final action on the proposed rule. In the interim, a sound approach to follow could be the type A meal pattern based on the authority granted the Secretary in 1970. The 1970 rule, allowing any foods served as part of a school lunch to also be sold competitively, appears to be as restrictive as the proposed rule. Because soft drinks, candy, and chewing gum are generally not considered part of a type A lunch, they could not be sold competitively.

We plan to submit to the Department a draft report in the near future on the need for improvements in judging the nutritional quality of food in a diet. That report will cover several Federal efforts to better define nutritious foods, including the current USDA effort to restrict competitive foods. Some of our contemplated recommendations will be applicable to the current proposed regulation.

^{1/}As stated in our December 26, 1978 report on "Formulated Grain-Fruit Products: Proposed Restrictions On Use In School Breakfast Program Should Be Reevaluated" (CED-79-12), such research should not be restricted to any one single product, but rather the standards and requirements should be developed and applied broadly to the foods used in school feeding programs.

In closing, we hope the information provided is useful and wish to emphasize that a well founded regulation which provides a sound basis for selecting appropriate foods for individuals and groups of individuals is important not only for effectiveness in Federal food assistance programs but for general guidance to our society. If there is additional data or information you feel we can provide, please do not hesitate to contact us.

Sincerely yours,

A handwritten signature in cursive script that reads "Max Hirschhorn".

Max Hirschhorn
Deputy Director

APPENDIX VI

APPENDIX VI

NUTRIENTS CONSIDERED FOR FOOD LABELING,
ADVERTISING, AND LEGISLATIVE PURPOSES

	1973 FDA's U.S. RDA (note a)	1974 FTC advertising regu- lation (note b)	1977 food stamp amend- ment (note b)
Protein	<u>c/</u> x	x	x
Vitamin A	<u>c/</u> x	x	x
Vitamin D	x	x	x
Vitamin E	x	x	x
Vitamin C	<u>c/</u> x	x	x
Folacin	x	x	x
Niacin	<u>c/</u> x	x	x
Riboflavin	<u>c/</u> x	x	x
Thiamin	<u>c/</u> x	x	x
Vitamin B6	x	x	x
Vitamin B12	x	x	x
Calcium	<u>c/</u> x	x	x
Phosphorus	x	x	x
Iodine	x	x	x
Iron	<u>c/</u> x	x	x
Magnesium	x	x	x
Zinc	x	x	
Pantothenic Acid	x	x	
Biotin	x	x	
Copper	<u>x</u>	<u>x</u>	—
Total	<u>20</u>	<u>20</u>	<u>16</u>

a/Based on the RDAs established by the Food and Nutrition Board, National Academy of Sciences, except for zinc, pantothenic acid, biotin, and copper.

b/Based on the FDA's U.S. RDAs for nutrients indicated.

c/Required for FDA nutrition labeling requirements.

STATE OF KNOWLEDGE OF NUTRIENT COMPOSITION

	SPECIMENS										FOOD ANALYSIS GROUP									
	VITAMIN A	VITAMIN B ₁	VITAMIN B ₂	VITAMIN B ₆	VITAMIN C	VITAMIN E	VITAMIN K	VITAMIN P	VITAMIN Q	VITAMIN R	PROTEIN	MOISTURE	ASH	FAAT	CHOL	IRON	NIACIN	THIAMIN	RIBOFLAVIN	ASPARTIC ACID
BABY FOODS																				
BAKED PRODUCTS - BREAD																				
SWEEET LOUDES																				
COOKIES - CHOCOLATE																				
BEVERAGES																				
CANDIES																				
CEREAL GRAINS - FLOUR																				
PASTA																				
DAIRY PRODUCTS																				
EGG AND EGG PRODUCTS																				
FAST FOODS																				
FATS AND OILS																				
FISH - RAW																				
COOKED																				
FROZEN DINNERS																				
FRUITS - RAW																				
COOKED																				
FROZEN OR CANNED																				
INFANT FORMULA																				
INSTITUTIONAL FOOD																				
LEGUMES - RAW																				
LIQUEFIED																				
PROCESSED																				
MEAT - BEEF																				
LAMB																				
PORK																				
SAUSAGE																				
VEAL																				
WOLFS & SHEEP																				
POULTRY																				
RESTAURANT FOOD																				
SNACK FOODS																				
SOUPS																				
VEGETABLES - RAW																				
COOKED																				
FROZEN																				
CANNED																				

SOURCE: DEPARTMENT OF AGRICULTURE
NUTRIENT COMPOSITION LABORATORY

SUBSTANTIAL DATA

INADEQUATE DATA

NOT PREPARED

STATE OF KNOWLEDGE OF NUTRIENT COMPOSITION

	LABORATORY DATA:			LIPIDS				MINERALS							TOTAL CALORIES	SEA- FOODS	VEGET- ABLES	FATS			
	WGT VIBRAL SQUADS	STARCH	NUTRI- ENT FIBER	TOTAL FAT	FATTY ACIDS	CHOLE- STEROL	OTHER STEROLS	TRANS FATS	CALCIUM	IRON	PHOS- PHORUS	SODIUM	MAGNE- SIUM	POTAS- SIUM					ZINC	COPPER	CHROMIUM
BAKED GOODS																					
BAKED PRODUCTS BREAD																					
SWEET GOODS																					
COOKIES CRACKERS																					
BEVERAGES																					
CANDIES																					
CEREAL GRAINS FLOUR																					
PASTA																					
DAIRY PRODUCTS																					
EGGS & EG PRODUCTS																					
FAST FOODS																					
FATS OILS																					
FISH RAW																					
COOKED																					
FROZEN DINNERS																					
FRUITS RAW																					
COOKED																					
FROZEN OR CANNED																					
INFANT FORMULA																					
INSTITUTIONAL FOOD																					
LEGUMES RAW																					
COOKED																					
PROCESSED																					
MEAT BEEF																					
LAMB																					
PORK																					
SAUSAGE																					
VEAL																					
NUTS & SEEDS																					
POULTRY																					
RESTAURANT FOOD																					
SNACK FOODS																					
SOUPS																					
VEGETABLES RAW																					
COOKED																					
FROZEN																					
CANNED																					

LABORATORY DATA	INFORMATION DATA	WATER QUALITY DATA
-----------------	------------------	--------------------

SOURCE: DEPARTMENT OF AGRICULTURE
NUTRIENT COMPOSITION LABORATORY

SUBSTANTIAL DATA

INADEQUATE DATA

NOT APPLICABLE

USDA ASSESSMENT OF
NUTRIENTS CONTRIBUTING TO U.S. HEALTH PROBLEMS
FROM AN INADEQUATE OR EXCESSIVE INTAKE OF THE NUTRIENT

	<u>No known contribution to existing problems</u>	<u>Suspected to be contributing to existing problems</u>	<u>Accepted as contributing to existing problems</u>
Carbohydrates and sugars	starch maltose	fructose	lactose nutrient fiber sucrose
Lipids and fats	--	fatty acids other sterols trans-fatty acids	cholesterol total fat
Minerals and trace elements	cobalt molybdenum nickel vanadium tin	arsenic chromium copper magnesium manganese selenium silicon	calcium fluorine iodine iron phosphorus potassium sodium zinc
Proteins and amino acids	--	amino acids total protein	--
Vitamins	biotin choline pantothenic acid	niacin vitamin E vitamin K	folacin riboflavin thiamin vitamin A vitamin B6 vitamin B12 vitamin C vitamin D
Other	--	--	total calories

APPENDIX IX

APPENDIX IX

USDA'S ASSESSMENT OF METHODS DEVELOPED FOR ANALYZING NUTRIENTS IN FOODS

	<u>Sufficient</u>	<u>Substantial</u>	<u>Conflicting</u>	<u>Fragmentary</u>	<u>Little to none</u>
CARBOHYDRATES					
LIPIDS					
		cholesterol fatty acids	fiber starch other sterols total fat	individual sugars trans-fatty acids	
MINERALS & TRACE ELEMENTS	calcium copper magnesium phosphorus potassium sodium zinc	total iron selenium	arsenic chromium fluorine iodine manganese	molybdenum	cobalt heme-iron non-heme iron silicon tin vanadium
PROTEIN		most amino acids	total protein some amino acids		
VITAMINS		vitamin C niacin riboflavin thiamin	vitamins A, B6, B12, D, E folacin pantothenic acid	biotin choline vitamin K	
CALORIES			available calories		

KEY

<u>Factors</u>	<u>Sufficient</u>	<u>Substantial</u>	<u>Conflicting</u>	<u>Fragmentary</u>	<u>Little to none</u>
Probability of correct value	excellent	good- excellent	fair	poor	very low
Speed of analysis	fast	slow	slow-fast	slow-fast	very slow
Cost per analysis	\$20-\$250	\$50-\$250	?	\$500 up	--

APPENDIX X

APPENDIX X

USDA'S PROJECTED NUTRIENT ANALYSES FOR 1979-84BASED ON CURRENT FUNDING LEVELS (note a)Analyses

<u>Nutrients</u>	<u>Number</u> (note b)	<u>Percent</u> (note c)
<u>Sugar and carbohydrates</u>		
Common sugars	500	5
Neutral detergent fiber		
<u>Fats and lipids</u>		
Total fat	2,500	25
Fatty acids		
Cholesterol		
and other sterols		
Vitamin E		
<u>Minerals and trace minerals</u>		
Calcium	1,200- 1,600	12-16
Copper		
Manganese		
Magnesium		
Potassium		
Sodium		
Zinc		
Phosphorus		
<u>Vitamins</u>		
Vitamin B6	200-400	2-4
Vitamin B12	200-300	2-4

a/Current funding level about \$2.1 million for nutrient composition data research. This amount excludes the cost of USDA overhead.

b/USDA estimates are based on about 4,000 generic foods, of which about 2,000 supply 80 percent of any given nutrient. USDA also estimates that for any given food item, an average of five manufacturers or producers would make most of that food item. Based on these assumptions, USDA estimates that approximately 10,000 (2,000 x 5) foods per nutrient will need to be analyzed to make a major impact on knowledge of available foods.

c/Percentage of analyses possible based on current funding levels.

USDA'S PROJECTED NUTRIENT ANALYSES FOR 1979-84BASED ON INCREASED FUNDING LEVELS (note a)

<u>Nutrients</u>	<u>Amount of in- creased fund- ing per year</u>	<u>Analyses (note b)</u>	
		<u>Number</u>	<u>Percent</u>
<u>Sugar and carbohydrates</u>	\$ 200,000		
Common sugars		4,000	40
Neutral detergent fiber		10,000	100
<u>Fats and lipids</u>	\$1,500,000		
Total fat		10,000	100
Fatty acids			
Cholesterol and other sterols			
Vitamin E			
<u>Minerals and trace minerals</u>	c/\$1,400,000		
Calcium, Copper		10,000	100
Manganese, Magnesium			
Potassium, Sodium			
Zinc, Phosphorus			
<u>Vitamins</u>	\$ 600,000		
Vitamin B6, B12, C		d/300-500	3-5
Niacin, Riboflavin			
Thiamin		d/ 10-100	0.1-1
Vitamin A, D			
Folacin			

a/Increased funding of \$4.7 million for a total funding level of \$6.8 million. Of the \$4.7 million, \$1 million would be directed at data dissemination. These amounts exclude the cost of USDA overhead.

b/Based on an analysis of 10,000 foods per nutrient and percentage of analyses needed to make a major impact.

c/Includes critical method development for the analyses of biological available iron, total chromium, selenium, nickel, vanadium, tin, silicon, and fluorine.

d/The current state of vitamin analyses needs to be further clarified before accurate projected estimates can be made. This is due to the high variability of results for these nutrients between laboratories, which suggests unresolved technical problems in the assays performed. These problems should be resolved before large numbers of assays are performed.

PARTICIPANTS IN GAO WORKSHOP ON
NUTRITION IN WASHINGTON, D.C.

Dr. George M. Briggs, Ph.D.
University of California
Dept. of Nutritional Sciences
Berkeley, CA

Dr. Ivy Celendar, Ph.D.
General Mills
Human Nutrition Dept.
Minneapolis, MN

Dr. William J. Darby, M.D., Ph.D.
Nutrition Foundation
New York, NY

Dr. Helen Guthrie, Ph.D.
Penn. State University
Human Development
University Park, PA

Dr. Gaurth Hansen, Ph.D.
Utah State University
Dept. of Food and Nutrition
Science
Logan, UT

Dr. Robert Harkins, Ph.D.
Vice-Pres. of Scientific Affairs
Grocery Manufacturers of America,
Inc.
Washington, DC

Dr. Gilbert A. Leveille, Ph.D.
Michigan State University
Dept. of Food Science and
Human Nutrition
East Lansing, MI

Dr. Kristen W. McNutt, Ph.D.
National Nutrition Consortium
Washington, DC

Dr. Robert O. Nesheim, Ph.D.
Vice-Pres., Science and Technology
Quaker Oats
Barrington, IL

Dr. Robert E. Olson, M.D., Ph.D.
St. Louis University
School of Medicine
St. Louis, MO

Dr. Ann Sorensen, Ph.D.
College of Medicine
Medical Center
Dept. of Family and Community
Medicine
Salt Lake City, UT

Dr. Phillip White, Sc.D.
Director, Dept. of Foods and
Nutrition
American Medical Association
Chicago, IL

Note: The contents of this report are the views of the General Accounting Office and do not necessarily represent the views of the individuals listed above.



DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20250

Feb 1, 1980

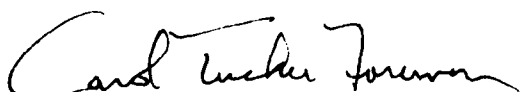
Mr. Henry Eschwege
Director
Community and Economic
Development Division
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548


Dear Mr. Eschwege:

Enclosed please find USDA's revised response to GAO's draft report entitled "Improvements Are Needed to Judge the Nutritional Quality of Food in a Diet," dated October 29, 1979.

The Department's response was drawn from staff reviews in the Science and Education Administration and the Food and Nutrition Service. We will be happy to meet with you and clarify any points which you do not understand.

Sincerely,


CAROL TUCKER FOREMAN
Assistant Secretary
Food and Consumer Services


ANSON R. BERTRAND
Director
Science and Education

Enclosure

[GAO COMMENT: The Department's comments suggesting changes, clarifications, and updating were considered, and the report was revised where appropriate. Page references in this appendix have been changed to conform to page numbers in this final report.]

USDA'S RESPONSE TO GAO'S DRAFT REPORT ENTITLED "IMPROVEMENTS ARE NEEDED TO JUDGE THE NUTRITIONAL QUALITY OF FOOD IN A DIET," DATED OCTOBER 29, 1979.

The Department of Agriculture agrees that the establishment of generally accepted nutrition principles would be beneficial. The public is increasingly interested in and concerned about nutrition and seeks reliable, unbiased guidance on which to base food decisions. Federal nutrition programs, for both nutrition education and food assistance, could benefit from a statement of principles to guide nutrition message development, food purchases, and other food program decisions.

Because the GAO report intermingles the concept of nutrition principles and "quality of food" it is unclear what issues they hope to clarify or raise for discussion in this report. The report is inconsistent in the use of the phrase "quality of food," using the term to refer to the nutritional "quality" of individual foods and to nutritional "quality" of a total diet or combination of foods.

[GAO COMMENT: The issue that GAO is raising is that methods and ways of judging the nutritional quality of food is needed. One way to improve the method of judging would be to develop generally accepted nutrition principles. The concept of nutrition principles, therefore, is needed to help judge the quality of food. In most cases, our report uses the term "nutritional quality" in reference to a total diet or combination of foods. Where appropriate, we have also used the term to describe an individual food, and the report has been clarified where necessary.]

Over the years, as the report notes, various groups have attempted to develop simple principles for classifying foods on the basis of their nutritional "quality." GAO itself in its initial contacts with this Department attempted to formulate such a set of simple principles and, like others, found it impossible to accomplish.

[GAO COMMENT: We realize the difficulties and complexities in developing simple principles for classifying foods on the basis of nutritional quality. At no time did we say, orally or in writing, that it was impossible to formulate such a set of principles. On the contrary, our report suggests that with the coordinated effort of the Federal Government, the scientific community, and the food industry, the likelihood of coming up with a set of generally accepted nutrition principles is increased and enhanced.]

APPENDIX XII

APPENDIX XII

The Department opposes the definition of "quality of food" as used by GAO on page 11 of its report. The definition used on page 7 of the report which encompasses the concept of a total diet is preferred.

[GAO COMMENT: We agree. The report has been clarified to show that our definition of the quality of food includes the concept of the total diet and not just an individual food.]

The Department agrees that HEW and USDA should "provide leadership needed to jointly develop a set of valid nutrition principles for advising consumer and Federal agencies in making nutrition related decisions." The USDA-HEW Informal Coordinating Committee over two years ago established a subcommittee to develop such a set of guidelines. The subcommittee's effort is to compile and summarize current scientific consensus on the issue of diet-disease relationships. It is not generating new scientific conclusions but is relying upon existing reports from the numerous American and international scientific bodies which have addressed these issues. (For illustration of nutrition guidance statements from several expert bodies see Appendix A).

Because the joint USDA-HEW subcommittee is not generating new scientific conclusions but is only summarizing scientific consensus, the Department of Agriculture sees little purpose to review of the nutrition guidance statements by other Federal agencies, the food industry, academic and nutrition communities, or outside bodies of experts, such as the National Academy of Sciences.

[GAO COMMENT: We expect and commend USDA and HEW for seeking the advice of many groups within and outside the Federal Government in developing dietary guidelines and we realize that the subcommittee is summarizing scientific consensus. We agree with USDA that when guidelines represent a summary of scientific consensus, then it is unnecessary for an external review of these guidelines. However, we believe, and HEW agrees, that an external review is in order when updating or revising guidelines, especially those not based on scientific consensus to ensure that they coincide with current research findings. External review is also necessary when the Departments develop more specific levels or ranges of intake of the controversial dietary substances.]

The Department does regularly rely upon the guidance and advice of such groups. Representatives of other Federal agencies, the food industry, academic and nutrition communities, and outside experts participate in the National Advisory Council on Child Nutrition and the Advisory Council on Maternal, Fetal, and Infant Nutrition.

APPENDIX XII

APPENDIX XII

The Department serves an average of 26 million school lunches daily for which it annually purchases approximately 114 million pounds of canned fruits. There is scientific consensus that high intakes of sugar are a significant risk factor in the incidence of dental caries, and that dental caries are a major public health problem among children. The Department need not await a final determination on the role of sugar in diabetes onset nor its role, if any, in cardiovascular disease. It cannot await the "fine tuning" of scientific conclusion but must act when the preponderance of the evidence suggests that to do otherwise would be negligence in the exercise of its responsibility to provide safe and healthful food programs to the populations targeted for nutritional intervention. Thus the Department has changed its purchasing specifications for the purchase of canned fruits and today purchases light rather than heavy syrup packed fruits in order to reduce the intake of sugar among school lunch participants.

The Department recognizes the need for continued research efforts to further elucidate the role of diet in health and disease, and the need to regularly and periodically issue up-dates of conclusions drawn about these relationships. Human nutrition research efforts in 1980 will have almost doubled over expenditures in 1976. The Department has diversified its research efforts by the addition of a facility devoted exclusively to the study of nutrition requirements of infants and children, and a facility for the study of nutrition during aging processes. Negotiations are beginning at the direction of Congress to initiate a third new facility at the Letterman Army Institute of Research in which nutritional status surveillance methodology will be refined.

As results from this research and from findings at our cooperating land-grant institutions and other academic and medical settings become persuasive, USDA and HEW will make changes accordingly in nutritional guidance statements issued to the public and used as a basis for food program decisions.

There are several specific points which USDA would like to make to the draft GAO statement.

First, GAO uses the term "promulgate" throughout the document when discussing government issuance of nutrition principles. The term "promulgate" commonly refers to the official announcement of a law, decree, etc. Neither USDA nor HEW intends to issue a nutrition guidance statement which would be in any form or manner tantamount to a law, rule, or regulation. Neither have either of the departments the authority to do so. Thus the substitution of a less authoritative term would ensure against further confusion by the public and others who fear that the Federal Government intends to "regulate what people eat."

Parts of the report need additional clarification. The outline of controversial dietary-disease relationships on page 16 is misleading. For example, while too little fiber in the diet and an excess of fat in the diet have been associated with some forms of cancer, it is misleading to use the label "the number two cause of death," since other forms of cancer, notably lung cancer, which contributes significantly to this mortality statistic, are not related to diet.

Further, there are several inaccuracies in the table on page 16. For example, the American Society for Clinical Nutrition concluded that sugar is not associated with diabetes mellitus and HANES data indicate that 35% (not 20%) of all adults are obese. Sources of information for this table should be referenced.

The joint USDA-HEW nutrition guidance statements being developed will not recommend consumption levels in specific quantities as suggested on page 19.

While the competitive foods issue is a useful example to illustrate the difficulties encountered when attempting to establish a standard for restricting the sale of some foods during the school mealtime, it is inappropriate for GAO to use this document as a forum for further extensive comment on USDA's proposed regulation in this area. GAO has submitted formal written comment to USDA, a copy of which it includes in its appendices. GAO should refrain from further elaboration upon its criticisms of the proposed regulations in the text of this document, particularly when there appears to be a misunderstanding of the standard.

[GAO COMMENT: As the Department has pointed out, we are using the competitive food issue as a useful example to illustrate the difficulties encountered when attempting to establish a standard for restricting the sale of some foods during the school mealtime. We use the example to argue for the need for generally accepted nutrition principles to help the Federal Government make better nutrition decisions, such as in helping USDA to establish a standard for judging the value of foods. As stated in the report, we believe the proposed USDA regulation may have been strengthened by the presence of a generally accepted nutrition principle directed toward making nutritional judgments of foods in a diet.]

On page 10, GAO criticizes the criteria used to define foods of "minimal nutritional value," arguing that children have varying nutrient and energy needs which preclude the application of a single standard. The regulation does not ignore the fact that children have different nutritional needs. We recognize, for example, that children's caloric needs may vary substantially. The regulation does not restrict the availability of calories or of any needed nutrient, rather it encourages children to consume foods which provide nutrients as well as calories so that the nutritional needs of all children can be met more effectively when meals are being served. It should be noted that no attempt is made, in the regulation to term some foods "good" and other "bad," rather a determination is made to restrict the sale of certain foods at a specific time in a specific place. GAO's detailed discussion of its opinion of this proposed regulation is not germane to the primary issue raised in this draft and should be deleted.

APPENDIX XII

APPENDIX XII

Also in the context of the discussion of competitive foods, there is an incorrect sentence at page 7 which states, "The Department of Agriculture... restricting the sale of foods on school premises, which the Secretary considers to be in competition with the school lunch program." The sentence should be corrected to read, "The Department... restricting the sale of certain foods which are sold on school premises in competition with the school lunch or breakfast programs."

The description of legislative failure to amend the Food Stamp Act to restrict purchases to foods of certain nutritional quality is misleading. GAO indicates that failure resulted from the inability of Congress to draw conclusions about the nutritional quality of foods. Legislative history delineates other factors as important in defeating these attempts. Members of Congress and the retail food industry expressed concern that such a restriction of food choice would lead to administrative problems as well as to interference with the right of choice of participants. The Chairman of the House Agriculture Committee warned that such a provision would accomplish little or nothing nutritionally since recipients could purchase the proscribed foods with cash.

IF GAO uses food stamp program decisions as an example of the potential use to be made of nutrition principles, it should exercise caution in interpreting past decisions not to use such a standard. Further, GAO should be cognizant that reliance on a definition of nutritious foods does not obscure other substantial programmatic concerns.

The discussion of the Recommended Dietary Allowances, page 15, should make clear to the reader that the allowances are intended to serve as goals for planning food supplies and as guides for the interpretation of food consumption records of groups of people. They have no application to the evaluation of individual dietary intakes.

The report criticizes the Department for lack of priority and concern with food composition analysis. GAO then proceeds on page 28 to acknowledge the recent creation of the nutrient data bank and the food composition laboratory. By joining this part of the report with prior pages in which GAO levels its criticism, the Department's efforts would be more accurately reflected and much of GAO's criticisms dissolved.

Further the criticism that priority is not given to food composition overlooks departmental constraints. In its new role as "lead" Federal agency for human nutrition research, USDA has numerous demands which must be met at a time when both national budget constraints and personnel ceilings demand judicious balancing of efforts in order to respond even minimally to the various areas of human nutrition research which Congress and the Administration see as important for the 1980's.

Current food composition analysis is hindered by the lack of sophisticated analytical techniques and the inability of a single government agency to keep pace with the introduction of new food items in the marketplace. Today more than 40,000 food items line grocer shelves. Many of these are formulated products whose composition cannot be estimated by calculations from Handbook #8 alone.

A comprehensive bank of food composition data will require the cooperation of industry. GAO should encourage industry to cooperate in efforts to provide a current and comprehensive data bank by contributing results of analyses of its products to USDA or by requesting that USDA conduct these analyses for industry on a cost reimbursement basis. To simply criticize the Department for a failure to conduct food composition analysis of more products in the marketplace is to ignore the reality of both the diverse number of products available and the fiscal constraints imposed upon the agency being asked to perform the work.

[GAO COMMENT: We agree with USDA's comments that current food composition analysis is hindered by the lack of adequate analytical methods and the inability of keeping pace with the many new food items that are introduced in the market. We also agree that efforts and incentives should be developed to encourage industry to continue and to expand its food analysis and to provide the results to USDA. We believe, however, it is primarily USDA's and FDA's responsibility to encourage industry, not GAO's. We are very much aware of USDA budget and personnel ceiling constraints. We recognize that USDA has made some efforts in recent years to expedite the badly needed updating of food composition data especially since the last complete published update of Handbook 8 was in 1963--almost 17 years ago. However, in view of the importance and need for good and current data, we feel that USDA needs to reevaluate its priorities regarding food composition data and place greater emphasis on obtaining more timely output of more complete and needed food composition data.]

The report ignores the joint efforts of USDA, FDA, and FTC to formulate labeling proposals for food products. The three agencies have held extensive public hearings and will shortly issue a joint docket of proposals on labeling.

Finally, the purpose of including the Pennsylvania nutrition curriculum is unclear (Appendix III). Government agencies are responsible for the administration of government programs. The establishment of curriculum for academic institutions is not among its program authorities and is a function more appropriately left to professional societies and universities.

[GAO COMMENT: We include the comprehensive list of nutrition concepts developed at Pennsylvania State University simply to provide some specific examples of nutrition concepts and principles that might be useful in establishing generally accepted nutrition principles to aid the Federal Government in making nutrition-related decisions. The report has been clarified to reflect this.]

For our last point, page 58 of the draft report, states that the Department conducts nutrient composition data research at a current funding level of \$2.1 million. This is incorrect. Current funding level is \$6.9 million in 1979 and \$7.06 million in 1980. Since this figure is roughly three times your estimate, you may need to rework the numbers of analyses projected.

[GAO COMMENT: The \$2.1 million that we reported is the funding level, excluding overhead, of the Nutrient Composition Laboratory and the Nutrient Data Research Group of the Science and Education Administration, USDA. These two groups are the primary intramural research units directly responsible for maintaining and updating a current nutrient composition data base. This figure was reported to us by the Chief of the Nutrient Composition Laboratory and it represents the current budgets and estimated needs of the two groups over the next 5 years. In recent conversations with a USDA representative, we were told that the \$6.9 million for 1979 represents both of the intramural activities cited above and extramural grants awarded through the Competitive Grants Program and Cooperative Research. We agree that the larger figure reflects a broader scope of nutrient composition data research activities. Although we did not attempt to determine the adequacy of the \$6.9 million, all the experts we talked to reiterated the need for more research to obtain current and complete nutrient composition data.]

Appendix A

Royal Ministry of Agriculture, Report No. 32 to the Storting (1975-76) on Norwegian nutrition and food policy:

The relationship between diet and health, for instance between diet and cardiovascular diseases, is not yet entirely understood. However, there is sufficient knowledge of this relationship to recommend alterations in the diet which are desirable from the point of view of preventing these diseases. .An objective should be to reduce the proportion of fat to 35% of the energy supply through a gradual alteration of the diet. The decrease in the supply of fat should be replaced by foods containing starch-primarily cereals and potatoes. There should be an attempt to limit the proportion of sugar in the energy supply. The proportion of polyunsaturated fatty acids in the total fat intake should be increased.

Joint Working Party of the Royal College of Physicians of London
and the British Cardiac Society, "Prevention of Coronary Heart Disease,
J. Roy. Coll. Phycns., Vol. 10, No. 3, April 1976.

Diet

1. Dietary recommendations for the community as a whole involve a reduction in the amount of saturated fats and partial substitution by polyunsaturated fats.
2. Where plasma lipid concentrations indicate particularly high risk or where other risk factors are concurrently present, the dietary recommendations should be followed more strictly.
3. Widespread screening for plasma lipid levels is not recommended but estimations should be carried out in certain groups known to be at high risk for CHD.
4. Maintenance of a desirable weight is important as obesity is commonly associated with more potent risk factors for CHD. Weight reduction should be based on a decrease in all dietary components; sugar and alcohol are recognized as common sources of excess energy intake. A combination of exercise and diet is strongly recommended.

The Surgeon General's Report on Health Promotion and Disease Prevention, "Healthy People", U. S. DHEW/Public Health Service Publication No. 79-55071.

"For the individual often only modest lifestyle changes are needed to substantially reduce risk for several diseases. And for many of the personal decisions required to reduce risk for one disease can reduce it for others."

"Within the practical grasp of most Americans are simple measures to enhance the prospects of good health, including:

- elimination of cigarette smoking;

- reduction in alcohol misuse;

- Moderate dietary changes to reduce intake of excess calories, fat, salt and sugar

- moderate exercise

- periodic screening for major disorders such as high blood pressure and certain cancers; and

- adherence to speed laws and use of seat belts"

Nutrition: Good nutrition is an essential component of good health. People should adopt prudent dietary habits, consuming:

- only sufficient calories to meet body needs (fewer calories if the person is overweight);

- less saturated fat and cholesterol

- less salt

- less sugar

- relatively more complex carbohydrates, such as whole grains, cereals, fruits and vegetables; and

APPENDIX XII

APPENDIX XII

4

relatively more fish, poultry, legumes (e.g., peas, beans, peanuts), and less red meat.

Employers, food advertisers, grocery stores and health and social service agencies can add to the promotion of healthy nutritional habits by providing the information and access to foods necessary to a good diet.

Recent Statements

Am. Soc. Clin. Nutrition-1979.

Panels appraised the relationship of the dietary factors and disease under three headings: a) Kinds of evidence; b) Quality and strength of evidence; and c) Risks and Benefits of reducing the intake of the dietary factor. High scores indicating considerable evidence of various kinds, relatively strong evidence and considerable probable benefit to be derived from reducing intake were:

Cholesterol and Fat, mean score 73

Carbohydrates and dental caries, mean score 87

Alcohol and liver disease, mean score 88

Salt, mean score 74

Excess calories, mean score 68

It is important to stress that the panels judged the evidence and benefits to be derived from reducing intake of cholesterol and fat and of salt to be strong as the relationship between excess alcohol consumption or excess calorie consumption and disease.

Low scores were given for the evidence relating excess consumption of carbohydrate (sugar) to atherosclerosis and diabetes (mean scores 11 and 13, respectively) and alcohol consumption and arteriosclerosis (mean score 13).

APPENDIX XII

APPENDIX XII

No recommendations given but the obvious conclusion is that reduced intake of fat, cholesterol, sugar and salt has a strong probability of improving health and little risk is indentifiable with such dietary recommendations.

U.S. Department of HEW, Task Force on Prevention, "Disease Prevention and Health Promotion, Sept. 1978.

Evidence for and current and possible programs for the prevention of chronic disease, communicable disease, traumatic injuries, etc., were reviewed. With regard to nutrition the report states.

"Nutrition education should promote prudent dietary practices, including: Reduction of excess caloric intake, particularly calories from fat; moderate intake of saturated fat and cholesterol; moderate sugar intake, for purposes of weight control and dental health; increased intake of complex carbohydrates; increased use of alternative sources of protein besides red meat-fish, poultry, legumes; moderate use of salt; and prudent use of other additives-e.g. sodium nitrate, refined sugar."

Report to the Surgeon General of Health Promotion and Disease
Prevention by the Institute of Medicine, National Academy of Science,
"Healthy People", The Surgeon General's Report on Health Promotion and
Disease Prevention, Background papers, 1979, Office of Assistant Secretary
of Health and Surgeon General, DHEW (PHS) Publication No. 79-55071A.

7

Excerpts from "Prevention of Cardiovascular Disease"

"Undernutrition is probably rarely today a contributing factor to cardiovascular disease in the United States. . . .Malnutrition appears indeed less of a cardiovascular problem. . . .than overnutrition. Unfortunately, overweight is a widespread problem, and overweight and high blood pressure (hypertension) are clearly associated. . . .There is an impressive case for avoidance of obesity, in the young, especially when there is a family history of cardiovascular disease, and for reduction in weight for those too corpulent persons who have high blood pressure. . . .It is unfortunate that regimens of all types aimed at achieving weight loss have demonstrated only a small measure of success to date."

"It is relevant to mention that diabetes, which is so frequently accompanied by premature atherosclerosis, and overweight are associated. . . ."

"The relation of diet to the most common forms of heart disease, coronary heart disease resulting from atherosclerosis of the coronary arteries, has been the subject of extensive investigation and discussion for decades. . . .It has long been known that an experimental form of atherosclerosis can be produced in a variety of animals by regimens which include the feeding of substantial amounts of cholesterol. Human arteries diseased with atherosclerosis are characterized by abnormal

deposits of cholesterol; and populations with high average serum cholesterol levels show a greater prevalence of coronary disease than populations with low average serum cholesterol levels. Further, community dietary observations have generally demonstrated a correlation between average saturated fat and cholesterol intakes and serum cholesterol values. A lowering of high serum cholesterol levels has been achieved in some individuals by a specific reduction of saturated fat, and cholesterol intake, as well as by a reduction in calories for those who have been overweight."

"Therefore, many scientists and organizations concerned with health have advocated diets containing only optimal calories and low in saturated fat and cholesterol (i.e., less than 10 percent of total calories from saturated fatty acids, up to 10 percent of total calories from polyunsaturated fatty acids and no more than 300 mg of cholesterol). . . This dietary program has had wide publicity and has clearly had a considerable impact on national food habits. In particular there has been a drop in the sales of dairy fats and eggs. The national serum cholesterol values in the United States have also shown a modest decline suggesting that an effective start to a dietary prevention program has begun. An encouraging drop has also occurred in the United States in the coronary death rate but it is uncertain how much of this may be attributed to dietary change."

"It should be stated that the role of the fat and cholesterol intake in human atherosclerosis has been challenged by some scientists. They believe that a convincing case has as yet not been made and call for more solid evidence. Indeed, there is general agreement that further investigations are needed. . . ."

"The role of salt intake in relation to high blood pressure has been dramatically demonstrated in relation to high blood pressure in the past in strains of salt sensitive rats. In Japan where the salt intake is high, strokes has constitutes the leading cause of death (although it is not clear that there is an excess of hypertension compared to Western countries). Certain isolated populations with traditionally low salt intakes have been reported to have little hypertension and little rise in blood pressure with age. . . .Most authorities in this field emphasize the potential value of limiting sodium intake "moderately" and point to the absence of side effects."

"Better means of accomplishing weight loss among the obese are urgently needed, and it appears both feasible and prudent to seek a reduction in our intake of saturated fat and cholesterol."

Joint FAO/WHO Report, "Dietary Fats and Oils"

FAO Food and Nutrition Paper No. 3, Rome 1977

Conclusions:

Food habits in population groups with a high incidence of atherosclerosis, obesity and maturity onset diabetes such that it will be difficult to achieve a reduction in fat intake below 30 energy percent. Furthermore, the commonly consumed food products are such that the invisible fat is mostly saturated, and the EPA have to come mainly from visible fat sources. For these reasons the generally recommended diet for the prevention of atherosclerosis should contain energy to maintain ideal weight, 10-15 energy percent of protein, 30-35 energy percent of fat, with less than one-third of saturated fatty acids and at least one-third of linoleic acid (18:2, n-6). It should be low in refined sugars and alcohol and contain less than 300 mg cholesterol per day.

There is good evidence from studies on animals and humans that such diets will significantly decrease two main risk factors for atherosclerosis: namely,

- blood lipoproteins carrying cholesterol and triglycerides
- Thrombotic tendency of blood platelets.

Furthermore, there are indications that such diets may have preventive and curative effects in sodium-induced hypertension and may normalize carbohydrate metabolism in maturity onset diabetes.

Food and Nutrition Board, NRC "Recommended Dietary Allowance"
8th Edition, National Acad., Sciences, 1974

"The effect of such dietary changes on the course of human atherosclerosis, on longevity, and other chronic diseases remains to be determined. However, the American Heart Association recommends that the proportion of energy derived from fat should not exceed 35 percent. 'Of that amount, less than 10 percent of the total calories should come from saturated fatty acids and up to 10 percent from polyunsaturated fatty acids.' This would probably provide a diet conducive to better health in the United States population."

"There is experimental evidence to support the assertion that diet high in simple carbohydrates, particularly in foods that do not clear the oral cavity promptly, may promote dental caries and that caries-susceptible individuals can reduce dental decay by avoiding foods that contain a high concentration of sugar."

"When intake of fat is reduced, it would be wise to substitute foods containing complex carbohydrates. Dietary modification can and should be made in such a manner as to ensure the adequacy of all nutrients."

Hypertension Task Force

Salt Statement

May 1978

Diets containing excessive sodium can produce hypertension in genetically predisposed animals. However, the role of sodium in the causation of hypertension in human beings has not been established. Some epidemiologic studies suggest a strong relationship between dietary sodium and prevalence of human hypertension but assessment of this relationship is complicated by other influences, such as potassium intake, body weight and physical activity.

Sodium restriction is important in the treatment of some hypertensive patients, but whether limiting sodium intake will prevent the disease is not known. Because of the ease of producing experimental hypertension by excess sodium, it seems likely that similar hypertension also occurs in man. Sodium intake in the United States is high and, in most persons, probably exceeds needs. Until more knowledge is available, we recommend that restraint be exercised in sodium consumption. Measures recommended include avoiding overly salted, prepared foods, not using the salt shaker at the table, reducing the amount of sodium added to baby foods and cooking with only small amounts of salt. All packaged food products should be clearly labeled as to sodium content. The Hypertension Task Force further recommends that research on the role of sodium in the causation of hypertension in humans be rigorously pursued.

Life Sciences Research Office, Feder. Am. Soc. for Exper. Biology.

"Evaluation of the Health Aspects of Sodium Chloride and Potassium Chloride as a Food Ingredient". 1979 .

"Although the findings of epidemiologic studies suggest a relationship between salt intake and onset of hypertension, the evidence that salt consumption is a major factor in causing hypertension is not conclusive. However, available data suggest that 10 to 30 percent of the U.S. population is genetically predisposed to hypertension and is exposed to a higher risk by ingestion of sodium chloride at current levels. The Select Committee believes that a reduction of sodium chloride consumption by the opulation will reduce the frequency of hypertension."

"The average daily intake of sodium expressed as sodium chloride from all sources is about 180 mg per kg for an adult (10 to 12 g per day). Such an intake exceeds estimates of the amount (range 2 to 10 g per day) that may elicit hypertension in susceptible individuals. A lower daily consumption of sodium chloride promises health benefits for the proportion of the population susceptible by hypertension."

"It is the prevalent judgment of the scientific community that the consumption of sodium chloride in the aggregate should be lowered in the United States. The Select Committee agrees and favors the development of guidelines for restricting the amount of salt in processed foods, a major contributor of dietary sodium. Adequate labeling of the sodium content of foods would help meet these objectives."

APPENDIX XII

APPENDIX XII

Report by the National Heart and Lung Institute Task Force on

Arteriosclerosis "Arteriosclerosis" DHEW Publication No. (NIH) 72-219,

Vol. II, June 1971.

"Three general conclusions could be readily reached at the end of these deliberations. First, an extraordinary amount of useful and highly relevant information bearing on this complex disease has been obtained from research already completed in this country and others during the past 20 years. Second, this research has led to new knowledge which should be more fully exploited by the National Heart Lung Institute to the advantage of the citizens of this country and, third, despite these important new data the totality of existing knowledge, especially as it relates to the basic causes of the disease, does not permit efficient or comprehensive control of either atherosclerosis or its complications, such as heart disease, stroke, kidney failure or peripheral disease. Thus the logical recommendations that follow from these conclusions are that this country should: 1) without delay, develop effective mechanisms for the exploitation of existing knowledge; and 2) recognize the necessity for continued and accelerated research at the most basic level, seeking information which will afford ultimate control of this important disease."

The Task Force endorses the following statement to the public with regard to risk factors:

Epidemiological and laboratory studies have uncovered several factors which are associated with an increased risk of developing atherosclerotic heart disease and other manifestations of arteriosclerosis. Elevated serum lipids, high blood pressure and cigarette smoking are major controllable risk factors.

It is not know whether all of these risk factors are causally related to atherosclerosis cardiovascular disease but the best judgment from present knowledge indicates that a significant reduction in the incidence of these diseases may be achieved by observing the following guidelines:

Blood lipids (Cholesterol and triglycerides): Elevation of serum lipids is implicated in the etiology of arteriosclerotic heart disease. Current data indicate that the average North American has higher than optimal blood lipid levels and ingests excessive calories, saturated fat, and cholesterol. Pending confirmation of appropriate diet or drug trials, it therefore would appear prudent for the American people to follow a diet aimed at lowering serum lipid levels. For most individuals, this can be achieved by lowering the intake of calories, cholesterol, and saturated fats. An attempt should be made to attain and maintain desirable weight through weight loss by balancing caloric intake and expenditure. In certain individuals with clearly elevated levels of serum cholesterol or triglycerides, close medical supervision with more rigorous attention to the diet and the use of drugs may be necessary."



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF THE SECRETARY

WASHINGTON, D.C. 20201

REFER TO:

OFFICE OF THE INSPECTOR GENERAL

5 DEC 1979

Mr. Gregory J. Ahart
Director, Human Resources
Division
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. Ahart:

The Secretary asked that I respond to your request for our comments on your draft report entitled, "Improvements Are Needed To Judge the Nutritional Quality of Food In A Diet." The enclosed comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

We appreciate the opportunity to comment on this draft report before its publication.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Richard B. Lowe III". The signature is fluid and cursive, with a prominent "R" and "L".

Richard B. Lowe III
Acting Inspector General

Enclosure

[GAO COMMENT: The Department's comments suggesting changes, clarifications, and updating were considered, and the report was revised where appropriate. Page references in this appendix have been changed to conform to page numbers in this final report.]

COMMENTS OF THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE ON THE GENERAL ACCOUNTING OFFICE'S DRAFT REPORT, "IMPROVEMENTS ARE NEEDED TO JUDGE THE NUTRITIONAL QUALITY OF FOOD IN A DIET."

GENERAL COMMENTS

The Department of Health, Education, and Welfare wishes to commend the GAO on the timeliness of this report and its findings. It is important to recognize that food decisions are increasingly more difficult for consumers and Government alike; and that improvements are needed in key areas to help consumers and Government make better decisions about the nutritional quality of food in the diet.

This Department would like to make a few general comments on the report before addressing the specific recommendations per se. First, a mis-quote in the report must be corrected. Neither HEW nor the joint HEW/USDA ad hoc committee developing the nutritional guidance materials for the general public have ever intended to establish recommended dietary levels for food components. This statement is made several times in the subject report (e.g., page 19) and must be corrected. The ad hoc group has been charged with developing a document containing only general directives for prudent food choices with a greater likelihood of promoting and maintaining optimal health. We believe that definitive guidance on levels of intake for dietary substances cannot be made with confidence at this time. It might be possible to suggest reasonable ranges of intake, but in doing so one would have to consider a host of variables (age, sex, activity levels, genetic predisposition to certain diseases, actual presence of certain disease or biochemical abnormalities, etc.), about which our information is quite limited. Our attempt is to take the most current consensus data from reliable research sources and offer the consumer helpful general guidance.

Second, the HEW/USDA group working on the nutritional guidance statement for the general public should be referred to as an interdepartmental ad hoc task force or committee rather than a joint USDA and HEW nutrition coordinating committee.

Third, the report states on page 9 that no Federal agencies have overall regulatory control over regulating or prohibiting food fortification. While it is true that HEW's Food and Drug Administration lacks express authority to control fortification, the Agency does have some control over food fortification through food standards and special dietary food regulations, through regulation of imitation and substitute foods, and through authority to prevent false or misleading labeling. The GAO statement on page 9 of the report should be clarified by including references to these authorities.

Fourth, the report implies that nutrient analysis of foods occurs primarily in the Nutrient Composition Laboratory of the Human Nutrition Center of USDA. We recognize that the Nutrient Composition Laboratory plays a significant role in nutrient analysis, but we believe that other government agencies as well as the food industry contribute significantly to nutrient knowledge through research and promulgation of information. The report should acknowledge the contributions made by the industry through nutrient

Page 2

analyses for the purpose of quality control and product labeling. The report should also recognize the HEW's Food and Drug Administration, because of its mandate to assure compliance with the Food, Drug and Cosmetic Act, must conduct nutrient analyses of foods; and in fact, has contributed significantly to the base of nutrient knowledge and to nutrient analytical methodology which will enable researchers to make further advancements in knowledge.

In addition, it should be pointed out that the recommendations offered are not going to solve the problem of defining the nutritional quality of food, e.g., how much of the given nutrient should be present or how many nutrients should be present and what are unacceptable limits of a given substance (sugar, fat, salt, artificial ingredients) in a food. Since much of the text of the report (pages 7-13) dwells on this problem of categorizing a food's nutritional quality, it would be consistent with this to provide more pertinent recommendations or an admission that such is not possible given the current state of knowledge.

[GAO COMMENT: The purpose of this report is not to arrive at a definition for the nutritional quality of a food, but to improve the basis of information needed to make better decisions about the value of foods to a diet. We believe our recommendation for generally accepted nutrition principles will allow the Federal Government and others make better and more consistent decisions about the nutritional quality of food.]

Finally, comments about the implications of the recommendations if they are accepted and implemented are in order. The recommendations imply that there is considerable information available about human nutrition needs which can be used as a basis for nutritional guidance and labeling for consumers. In fact, much of the information about human nutritional needs was derived many years ago and is in need of improvement. The development of reliable information about current nutritional needs, particularly of various population groups (e.g., children, pregnant women, geriatrics) are identified and their specific needs addressed, will require very difficult, complex, costly and time-consuming research and will, of necessity, involve volunteer human subjects at some point. Such research will be costly and because of its non-proprietary nature will be of little interest to the private sector. Thus the burden for this research will fall, to a significant extent, on the Federal government. This discussion is not intended to argue against the value of the recommendations contained in the draft report nor to argue against their importance to public health. The Department simply wishes to ensure that these factors are taken into consideration during the review of the draft and its recommendations.

[GAO COMMENT: We do not intend to imply that there is considerable information available about human nutrition needs which can be used as a basis for nutritional guidance and labeling for consumers. In fact, we agree with USDA that continued research is needed, which we say in this report. We have also recognized the need for more nutrition research in two earlier GAO reports--"Recommended Dietary Allowances: More research and Better Food Guides Needed," CED-78-169, Nov. 30, 1978, and "Federal Human Nutrition Research Needs a Coordinated Approach to Advance Nutrition Knowledge," PSAD-77-156, March 28, 1978.]

COMMENTS ON RECOMMENDATIONS

GAO Recommendation

That the Secretaries of Agriculture and Health, Education, and Welfare provide the leadership needed to jointly develop, with the aid of other Federal agencies, the food industry, academic and nutrition organizations, a set of valid nutrition principles for aiding consumers and Federal agencies in making nutrition related decisions.

Department Comment

This Department concurs with the concept of developing a set of explicit principles designed to assist consumers and the Government in the selection of foods appropriate to the nutritional needs of individuals and consistent with the promotion and maintenance of optimal health. As the report indicates, HEW is currently participating with USDA in the development of a statement of nutrition guidelines for the consumer. This statement will be derived from an assessment of the scientific consensus. Any subsequent dietary guidance information issued by the two departments should be referred for evaluation to a body of experts such as the Food and Nutrition Board of the National Academy of Sciences to ensure that the guidance coincides with the most up to date research findings. Present plans are to distribute the publication to the public early next year.

GAO Recommendation

That the Secretaries of Agriculture and Health, Education, and Welfare convene a panel of experts in and outside of Government, or request that a group be established by an outside organization such as the National Academy of Sciences, to evaluate and recommend changes, if appropriate, on the guidance to be developed by a joint USDA/HEW nutrition committee on intake levels for controversial dietary substances associated with public health concerns, such as fat, cholesterol, sugar, fiber, salt, and alcohol.

AD-A083 909

GENERAL ACCOUNTING OFFICE WASHINGTON DC COMMUNITY AN--ETC F/8 6/8
WHAT FOODS SHOULD AMERICANS EAT? BETTER INFORMATION NEEDED ON N--ETC(U)
APR 80
GAO/CED-80-68

NL

UNCLASSIFIED

2 of 2
AD
40-839-9

END
DATE
FILMED
8-80
DTIC

Department Comment

The Department concurs that outside reputable scientific bodies ought to review the adequacy of any recommended levels established by the two Departments for intake of the listed dietary substances is desirable. HEW presently has contractual arrangements for this purpose with organizations such as the National Academy of Sciences, The American Society of Clinical Nutrition, the American Academy of Pediatrics and the Federation of American Societies for Experimental Biology as well as others. We believe a commitment to an outside scientific review is in order when updating and/or revising nutrition guidelines statements, in particular those statements not based on existing scientific consensus data in order to ensure that the guidance coincides with the most up to date research findings.

APPENDIX XIV

APPENDIX XIV

FEDERAL TRADE COMMISSION
WASHINGTON, D. C. 20580

BUREAU OF
CONSUMER PROTECTION

November 26, 1979

Mr. Gregory J. Ahart
Director
Human Resources Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Ahart:

This is in response to your letter of October 29, 1979 to Chairman Pertschuk accompanying a draft of your staff's proposed report entitled "Improvements Are Needed to Judge the Nutritional Quality of Food in a Diet." The letter and report were forwarded to the Bureau of Consumer Protection for reply after consultation with other organizations within the agency. You should be aware that this response represents the views of the Commission staff and does not necessarily reflect those of the Commission or any individual Commissioner.

We certainly agree that a review of nutrition principles would be useful and applaud your recommendation that the review be performed by a multidisciplinary group that includes consumer and industry representatives. Hopefully, such a review process would culminate in a set of guidelines that could be used by all parties engaged in nutrition education activities without being so general as to be of little use. This is a particularly important caveat as it relates to your statement that generally accepted nutrition principles could aid the federal government in making controversial nutrition decisions. The text of your report indicates the tension that is inherent in stating that a way needs to be found to define the nutritional quality of food without suggesting that some foods are of lower nutritional quality. This may be a very difficult task and should perhaps be guided by a fuller explication in your report of those contradictions and clearer guidance on specific points that the task force should consider.

The need for authoritative guidance of controversial dietary substances is clear. We are pleased that USDA and HEW have formed a joint working group to provide such guidance and feel this, in concert with the Surgeon General's Report Healthy People and the report of the committee of the American Society for Clinical Nutrition, should provide adequate support for recommendations by various groups regarding possibly harmful dietary substances. This type of review needs to be conducted periodically to

[GAO note: Page references in this appendix have been changed to conform to page numbers in this final report.]

Mr. Gregory J. Ahart

-2-

incorporate new findings. We would have no objection to review of the findings of HEW and USDA by the Food and Nutrition Board but hope that this would not unduly prolong the finalization of the guidelines.

Finally, we fully support the GAO recommendation regarding the need for more current and comprehensive data on the nutrient content of food. Our participation with USDA and FDA in the labeling hearings this past year and our desire to encourage manufacturers to provide more nutrition information in advertising has clearly shown us the pressing nature of the need for more and better data. It is important, though, that policy on nutrition principles and guidance must be developed even though complete food composition data are not available.

Specific Comments

We would suggest the following changes in the report:

1. The Staff of the FTC's Bureau of Consumer Protection has recommended termination of Phases II and III of the proposed TRR on Food Advertising. Therefore, there may not be consideration of the standard for foods advertised as "nutritious" mentioned in the report (see pp. 8,10-11,26,42, Appendix V, p.49, Appendix VI, p. 53). Particularly the second paragraph on p. 11 should be rewritten to reflect the present status of the proposal.

2. Page 10, the footnote, should read: The FTC staff consulted with various persons on the staff of the Food and Drug Administration during the development of the proposed regulation on food advertising.

3. Comments on section dealing with FTC's Proposed Children's Advertising Regulation (p. 18)

The first three sentences of the first complete paragraph on page 18 should be deleted. The present language is incorrect because the Commission expressed no position as to the appropriateness of regulatory activity in this area or as to any particular remedy. In place of the present language, the following sentence should be substituted:

The Commission sought public comment on these and other possible alternatives relating to the regulation of television advertising directed to children.

Mr. Gregory J. Ahart

-3-

Further, the last sentence in this paragraph should be modified, in light of the present rulemaking schedule, to indicate that a final ruling on this issue is not expected until late 1980.

As we noted in our original oral and written comments on the draft of this section, the next paragraph is wholly inaccurate. To be accurate, it should read:

The FTC Staff has not defined sugared food products. This issue must be resolved before a final rule is promulgated. How "sugared food products" should be defined was one of the many issues addressed in the written comments and oral testimony presented during the comment period and hearings. A definition of sugared food products for purposes of this regulation will be developed based on the evidence presented during the rulemaking proceeding.

Reference to the SNE study in the footnote on this page is in error. The SNE study did not in any way address the issue of how sugared foods should be defined for purposes of this proposed regulation.

The last full paragraph on page 18 should be modified to read:

Disposition of the proposed rule would be served by the presence of authoritative guidelines on appropriate levels of sugar intake for children.

Again, thank you for giving us an opportunity to comment on your report. Please contact us if you have any additional questions.

Sincerely,



Albert H. Kramer
Director
Bureau of Consumer Protection

[GAO COMMENT: The FTC Staff's "Specific Comments" suggesting changes, clarifications, and updating were considered, and the report was revised where appropriate.]

Nutrition and Your Health

Dietary Guidelines for Americans



**Eat a Variety of
Foods** page 4



**Maintain Ideal
Weight** page 7



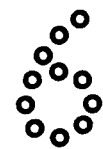
**Avoid Too Much Fat,
Saturated Fat, and
Cholesterol** page 11



**Eat Foods with
Adequate Starch
and Fiber** page 13



**Avoid Too Much
Sugar** page 15



**Avoid Too Much
Sodium** page 17



**If You Drink
Alcohol, Do So in
Moderation** page 19

U.S. Department of Agriculture
U.S. Department of Health, Education and Welfare

Source: Cover of a pamphlet, "Nutrition and Your Health," published by U.S. Department of Agriculture and the Department of Health, Education, and Welfare.

(097060)

Single copies of GAO reports are available free of charge. Requests (except by Members of Congress) for additional quantities should be accompanied by payment of \$1.00 per copy.

Requests for single copies (without charge) should be sent to:

U.S. General Accounting Office
Distribution Section, Room 1518
441 G Street, NW.
Washington, DC 20548

Requests for multiple copies should be sent with checks or money orders to:

U.S. General Accounting Office
Distribution Section
P.O. Box 1020
Washington, DC 20013

Checks or money orders should be made payable to the U.S. General Accounting Office. NOTE: Stamps or Superintendent of Documents coupons will not be accepted.

PLEASE DO NOT SEND CASH

To expedite filling your order, use the report number and date in the lower right corner of the front cover.

GAO reports are now available on microfiche. If such copies will meet your needs, be sure to specify that you want microfiche copies.

